ENGINEERING NEWS-RECORD

Spectacular steps in Mackinac Bridge erection p. 36

B B POWER GS N
UNIVERSITY MICROFILMS IN
513 N 1 ST
ANN ARBOR MICH

A McGRAW-HILL PUBLICATION

Here's how Wrought Iron Pipe cuts costs at Cleveland's Southerly Sewage Disposal Plant

Few services are as punishing, corrosion-wise, as those found in sewage disposal installations. Sludge digestion and elutrition tank pipe for example—they can be rough.

That's why Cleveland engineers specified more than 115 tons of wrought iron pipe in the city's Southerly Sewage Disposal Plant improvement program. They wanted no troublesome and expensive shutdowns due to pipe failures in inaccessible locations.

Wrought iron pipe was installed at the Southerly site in the following services: Sludge digestion and elutrition tank piping; cold water lines—1″ to 2½″ downspouts and leaders; all heating piping; handrailings; blower lube oil piping; perforated pipe diffusers; expansion tank piping; air piping; diesel oil piping; exhaust gas piping.

In years of service life per piping dollar, wrought iron's supremacy in severely corrosive sewage disposal services has been proven time and time again. Wrought iron's corrosion resistance stems from a structural feature duplicated in no other metal—glasslike iron silicate fibers (250,000 per cross sectional square inch)—entrained in the pure base metal. These fibers act as barriers to corrosive attack.

If wrought iron's low cost, high performance story interests you, write for our bulletin, *Wrought Iron for Sewage Treatment and Disposal Installations*. A. M. Byers Company, Clark Building, Pittsburgh 22, Pennsylvania.

BYERS Wrought Iron Tubular and Hot Rolled Products

ALSO ELECTRIC FURNACE AMBALLOY STEEL PRODUCTS AND PVC PIPE

Corrosion costs you more than Wrought Iron

The entire improvement program is supervised by City of Cleveland's Director of Public Utilities, Emil J. Crown, and is under the direction of Commissioner of Engineering, G. W. Hamlin, and Commissioner of Division of Sewage Disposal, W. E. Gerdel. Havens and Emerson, Consulting Engineers, Cleveland, designed the Southerly project.

GOODYEAR INDUSTRIAL PRODUCTS
G.T.M.-Specified
FLEXSTEEL Air Hose for roughest mine, quarry and construction service
A
B
C
A Soft, tan-colored cover to resist cutting, gouging and abrasion
B Superstrong, braided steel wire and cord reinforcement to handle high pressures, resist crushing and kinking
C Special synthetic seamless tube withstands both heat and oil

How to keep costs low on a high-pressure job

You might well start with your hose. For miles of it are required to handle king-size grouting jobs like those on the St. Lawrence Seaway project.

And it takes a super-tough hose to stand up under the high pressures you use to force grout into cracks and fissures. Add the constant pulling and hauling about it gets–the rough and rocky ground it's pulled over – and it's easy to see how hose can become a real profit-eater.

But with FLEXSTEEL Hose you keep costs at rock-bottom. Its rugged inner tube and braided steel wire "muscles" are more than equal to the high-pressure work. And a super-tough cover shrugs off the roughest handling under the roughest conditions.

Yet, tough as it is, FLEXSTEEL Hose is light enough for moving speedily from job to job. It's amazingly flexible, too–so it's easily maneuvered, even in the closest quarters. No mystery, then, why the G.T.M. –Goodyear Technical Man–recommends FLEXSTEEL for big, fast-moving jobs the country over.

How about lower costs on your next high-pressure job? Just contact the G.T.M. through your Goodyear Distributor–or by writing:

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Akron 16, Ohio

FLEXSTEEL HOSE by

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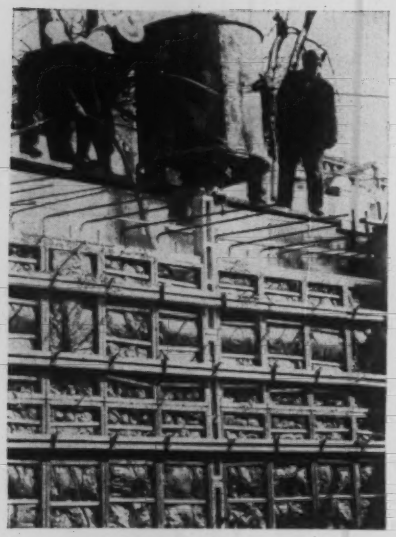
THE GREATEST NAME IN RUBBER

Flexsteel–T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

Insulated Forms

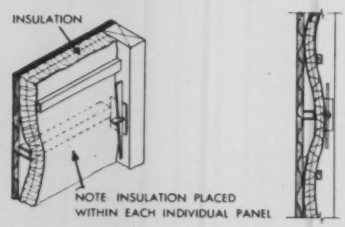


Symons Forms and Balsam Wool Insulation

Save 50% on Cost of Heating & Curing Concrete

C. R. Meyer & Sons Company, Oshkosh, Wisconsin posted this record 50% savings on the new $1,000,000 central office building of the Wisconsin Telephone Company at Oshkosh. Two-inch insulation in 24-inch widths was tacked to the forms. Walls were 12 inches thick and varied in height from 12 to 16 feet.

Pouring was started in January. Temperatures ranged from five to 25 degrees above zero. Concrete at time of pour was held in the 70 to 80-degree range. During one pour a



Cutaway section of form with insulation

tube was cast in the wall four feet from the top with a thermometer suspended in the bottom. After 24 hours, temperature at center of concrete rose to 105 degrees and after five days the concrete went back to 70.

Symons forms, shores and column clamps may be rented with purchase option. FREE literature on Symons' products is available upon request.

Symons

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ENGINEERING NEWS-RECORD

EIGHTY-FOURTH YEAR OF PUBLICATION

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SWING CLUTCHES!

WHAT is a Swing Clutch to you?—just another crane or shovel assembly?

Swing Clutches can make or lose money. You should find out all about them. Your Swing Clutches are being loaded and unloaded constantly. Heat dissipation is an important phase of their operation. They can be the source of wasted time in spotting loads particularly with long booms.

Northwest pioneered Uniform Pressure Swing Clutches for Shovel and Crane equipment. They are designed and built for Shovel and Crane service and in Northwest equipment they have reached the highest stage in the development of this type of assembly. No inside or outside band clutch is a Uniform Pressure Clutch. In the Northwest Uniform Pressure Clutch there is even pressure over the entire area of the clutch—there is no variation in clutching force as there is between the dead end and the live end of a band clutch.

Northwest Swing Clutches are easily operated and require no booster equipment for engagement. The driving elements are equipped with a great number of fins which give a blower action insuring continuous cooling. The whole assembly is rugged and proved capable of day in—day out trouble-free service.

Northwest Uniform Pressure Swing Clutches mean smooth engagement, freedom from grabs and jerks, accuracy in spotting loads, longer life and greater output. A Northwest Man will be glad to fill in the details.

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The man from Olin Aluminum stands for a big Service Principle...

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He is ready to serve you now. Just call any of the offices listed below, or write:

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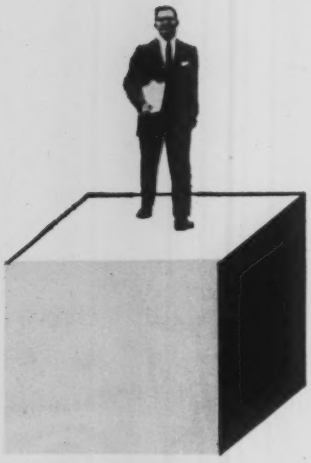

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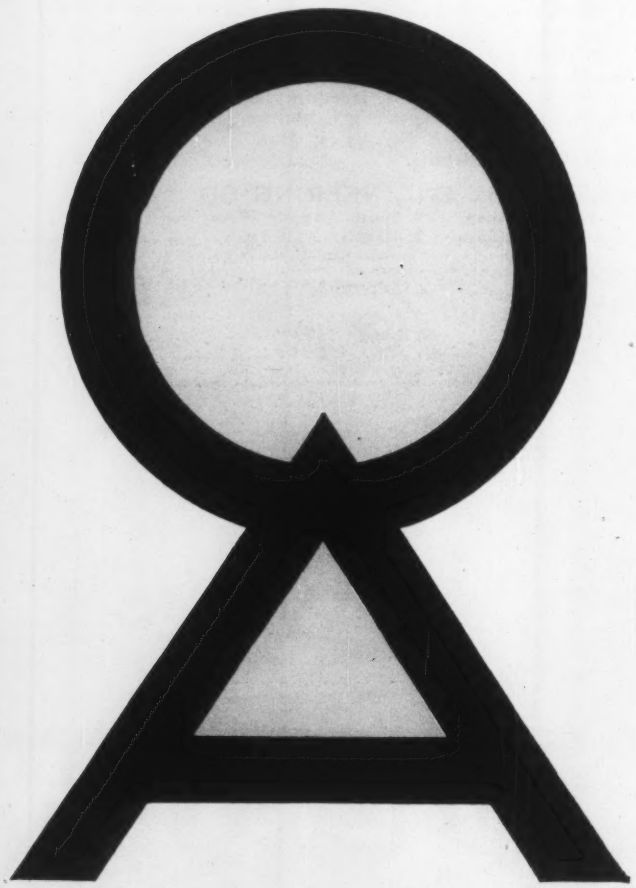
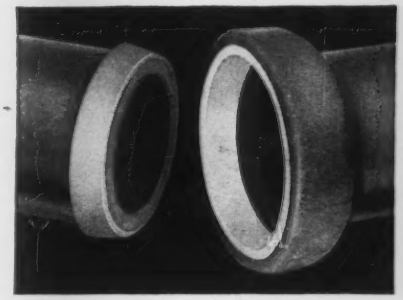


Symbol of Quality and Service in the Aluminum Industry

lower installation costs FIVE WAYS with longer, stronger AMVIT Clay Pipe

Outstanding Mechanical Joint of Plasticized Resins of Polyvinyl-Chloride Gives Lower Cost-In-Place



A million dollar expansion program to increase production facilities for Amvit* was completed earlier this year. New horizontal extrusion machines now manufacture pipe in over four feet lengths.

Longer lengths lower installation costs, reduce the number of joints, lessen the number of pipe sections to be handled. *Here's how you can save on installation with Amvit:*

1 SAVES LABOR

No other materials such as caulking, joint compounds, hot pots or ladles are needed to make the Amvit Joint. The joint is on the pipe delivered to the job ready for use. Nothing else is needed. Just push the pipe together and the joint is complete.

2 IMMEDIATE BACKFILLING

As soon as the joint is made, backfilling can start. No need to wait for unnecessary delays caused by bad trench conditions, high-water table, unstable ground or running sand. Barricades can be removed and streets opened days sooner.

3 QUICK TESTING

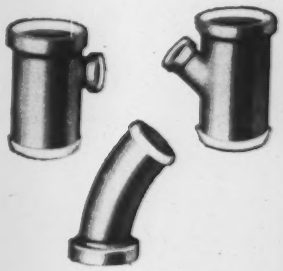
No need to wait days to see if a line has passed test. A look at the completed joint will tell. Thus, engineers can inspect and accept the line allowing the contractor to receive payment quicker.

4 PERMITS DEFLECTION, ABSORBS SHOCKS

Amvit is made from a plastic which has many characteristics similar to rubber. It is pliable, permitting deflection without leakage. It is resilient, can absorb shock and vibration. This allows for settlement of pipe in poor ground conditions after backfilling.

5 COMPLETE FITTINGS

Amvit is furnished on all standard fittings, as well as pipe. This will permit a uniformly tight line from house wall to treatment plant.



Amvit line being installed in Amherst, Ohio

*T. M. Registered.

For more information on how Amvit can help cut your sewer project costs, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

SINCE 1900

AMERICAN

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CLEVELAND OHIO

MANUFACTURERS OF: Clay Pipe, Flue Liners, Clay Liner Plates and Concrete Pipe.

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Never before has Chevy been

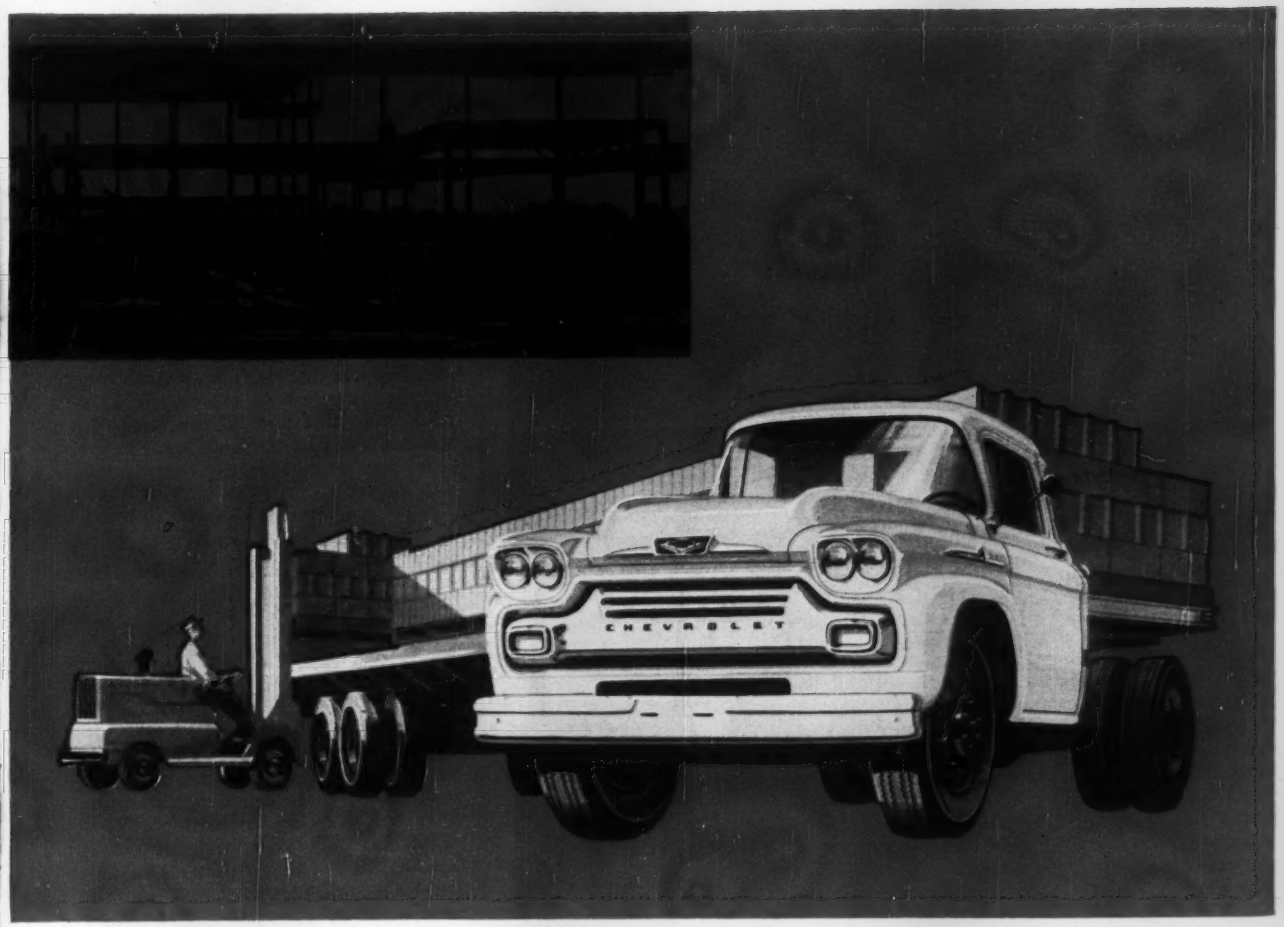
Here's a truck specially designed to take to your kind of work like a duck takes to water! It's Chevrolet for '58 with new hustle, muscle and style that mean money in your pocket!

As you can see, Chevy's a honey of a truck this year, and that handsome, broad-shouldered '58 appearance only hints at the host of new and improved features that are ready to put you dollars ahead in the years to come. *Here's a truck ideally suited for haulers in your line of work.* In styling, for instance, Chevrolet for '58 has what it takes to build your business prestige every day in the week: new dual headlamps, new massive grille, newly contoured hood, new cab beauty, to mention just a few innovations.

And what workers these new heavyweights are! There's new power to whip mammoth hauls from the industry's newest engine, the 230-h.p. Work-

CHEVROLET

NEW CHEVROLET



so right for big construction jobs!

master V8* with revolutionary Wedge-Head design. This engine is new and different right down to the core. The combustion chambers, for instance, are *wedge-shaped* and located in the cylinder block rather than in the cylinder head. And the cylinder block is machined to a 16-degree slant, while the piston heads are peaked rather than flat, as in most other engines. This design gets maximum combustion turbulence from fuel, maximum power and mileage from each drop of gasoline burned. It equalizes the work loads on pistons to smooth out performance and reduce engine wear.

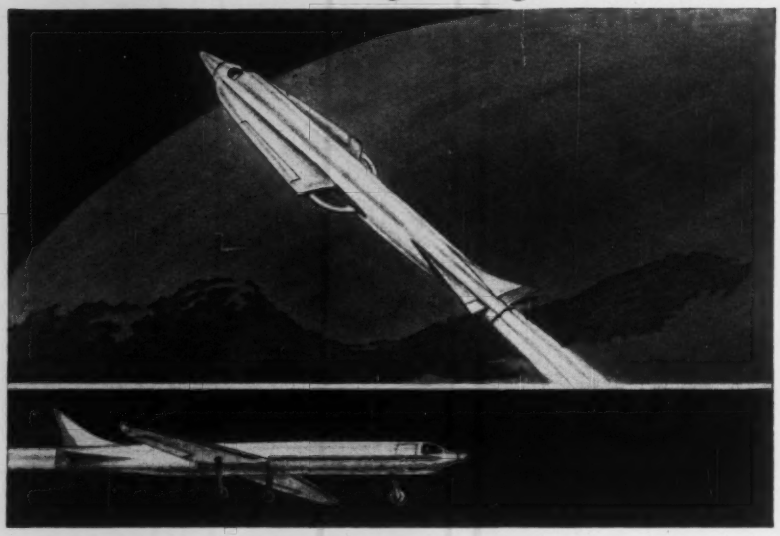
G.V.W.'s go all the way up to 36,000 lbs. on Triple-Torque tandem models for big, profitable payloads. And these trucks come equipped with the toughest of big truck chassis components, either as standard equipment or as extra-cost options: Powermatic transmission, cast spoke or disc wheels, air-hydraulic brakes, full-air brakes or big Hydrovac power brakes, and smooth Synchro-Mesh transmissions to meet your needs precisely.

There are many such reasons why Chevy's never been *so right* for your work—many more reasons why you'll want to see your Chevrolet dealer soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**Featured in Series 90 and 100.*

TASK · FORCE 58 TRUCKS

MARS outstanding design **SERIES**



brings 'em back alive

Today's burning problem in space flight is how to ease a rocket safely back to earth, without being consumed by the metal-melting friction of our dense atmosphere. Design Engineer Carl J. Rauschenberger's ingenious suggestion is a pair of wings, locked forward at blast-off, later folded back into flying position (insert) by hydraulic cylinder controls for a slow, safe descent. Mr. Rauschenberger also envisions a retractable glass nose cone, heatproof to withstand the take-off, drawn back to admit air to a jet engine on the return flight.

This outstanding solution to a timely design problem may already exist in working drawings on somebody's drafting board, or even in mock-up form. But whether a project is developed today, tomorrow or the year after next, it will always be important to shape ideas into realities with the best of drafting tools.

In pencils, of course, that means Mars, long the standard of professionals. Some outstanding new products have recently been added to the famous line of Mars-Technico push-button holders and leads, Lumograph pencils, and Tradition-Aquarell painting pencils. These include the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman" pencil sharpener with the adjustable point-length feature; Mars Lumochrom, the color-drafting pencils and leads that make color-coding possible; the new Mars Non-Print pencils and leads that "drop out" your notes and sketches when drawings are reproduced.

The 2886 Mars-Lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder. 1904 Mars-Lumograph imported leads, 18 degrees, EXB to 9H. Mars-Lumochrom color-drafting pencil, 24 colors.

J.S. STAEDTLER, INC.
HACKENSACK, NEW JERSEY

at all good engineering and drawing material suppliers

Reader Comment

Subway Train Routing

SIR—I found your article "Load Transfer is Key to Subway Job" (ENR Dec. 19, 1957, p. 38) very interesting. However, the diagram of original and ultimate operation neglected to show one important feature.

The diagram of ultimate operation shows no provision for Fourth Ave. trains to operate via the tunnel. It would appear that the Transit Authority intends to route both express and local trains from this line via the bridge to Manhattan. This does not seem to me to be feasible.

JOHN C. VAN TINE,
New York Naval Shipyard,
Brooklyn, N. Y.

EDITOR'S NOTE: Reader Van Tine has sharp eyes. We neglected to show a crossover between the De Kalb Ave. and Pacific Ave. stations that will connect the Fourth Ave. line with the tunnel route to Manhattan.

Engineers' Insurance

SIR—Quite a number of brokers, agents and assureds have called our attention "Errors Don't Have to Bankrupt You" (ENR Dec. 5, 1957, p. 166), particularly with regard to the last paragraph. This paragraph states in essence that with the exception of Kentucky and Illinois, brokers cannot legally handle insurance in a non-licensed company once a licensed firm starts writing a comparable policy.

We wish to call your attention to the fact that this is not an accurate statement. We have not made an analysis of the laws of each and every state but we can speak for the West Coast and the law in the West Coast states, including Oregon, Washington, California, Utah, Idaho, Arizona and Montana, permit Lloyd's to continue to write this class of business. The law in these states does not say that if a licensed company will write the coverage, an unlicensed company cannot do so. What it does say is that Lloyd's cannot write coverage if the majority of admitted carriers licensed to write a class

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Why SHOULDN'T I be interested in business life insurance?

"My family's future security depends upon the future of my husband's business."

A death can shake the very foundation of any business and cause serious financial problems to the families which rely on it. That's why business life insurance is important to every woman, whether her husband is an owner, partner, stockholder or key executive. The future of the firm often depends on business life insurance.

Ætna Life's Business Planning Service can help your attorneys for efficient transfer of your business estate and increase its dollar effectiveness. Thoroughly trained Ætna Life representatives in 91 agencies from coast to coast are ready to offer you this unequaled service in planning your business life insurance.

ÆTNA BUSINESS LIFE INSURANCE PLANS ARE SPECIALLY DESIGNED . . .

- To preserve **PARTNERSHIP** value when death comes to any partner.
- To preserve **SOLE PROPRIETORSHIPS** for heirs or selected employees.
- To preserve ownership values when death comes to any stockholder in a **CLOSE CORPORATION.**
- To indemnify any firm for the death of a **KEY MAN.**

Add Life to your Business with Ætna Business Life Insurance

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Gentlemen:

Please send me a copy of your new business life insurance booklet "Will This Man Take Your Business With Him When He Dies?"

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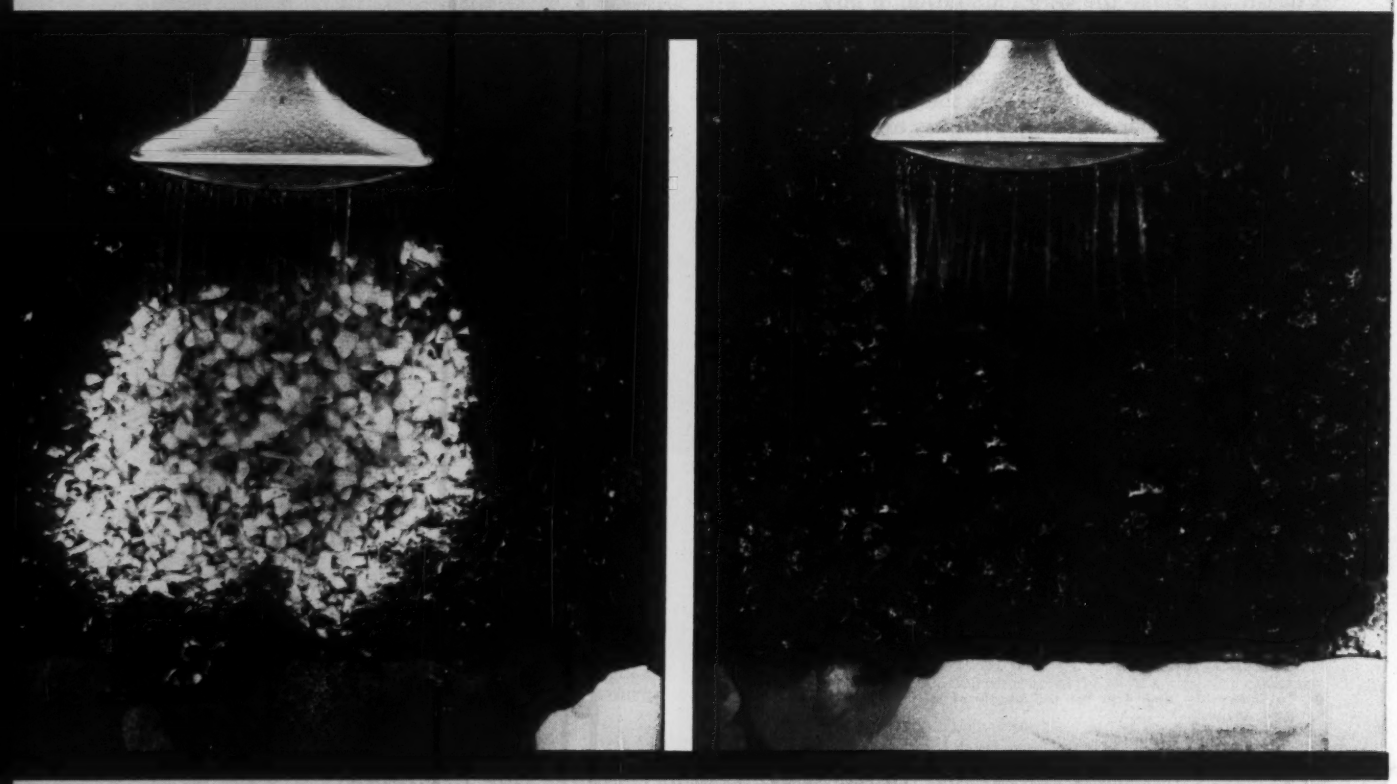
Announcing the NEW

CATIONIC BITUMULS

- **Coats "Treacherous" Aggregate**
- **Protects Your Cold-Mix Pavements and Surface Treatments Against Early Rains**



These unretouched photographs taken in our laboratory clearly show the remarkable ability of CATIONIC Bitumuls to coat and hold silica-crystal chips, and to stand up under early rainfall. Here are two samples of cold-mix materials. They are identical with this exception: the sample on the left was mixed with a conventional road emulsion; the sample on the right was mixed with new CATIONIC Bitumuls. No anti-stripping additive was used. Both samples were allowed to cure for 10 minutes; then subjected, as shown, to equally-metered showers of water. Results: the conventional emulsion almost completely washed off, while the CATIONIC binder still coats the silica chips and holds them firmly in position.

YOU NAME YOUR "HARD TO COAT" AGGREGATE—NEW CATIONIC BITUMULS WILL HANDLE IT!

Now—with new CATIONIC Bitumuls—you can treat "hard to coat" aggregate—damp or dry—fast and effectively.

CATIONICS represents a startling new departure in the making of asphalt emulsions. New CATIONIC Bitumuls because of its versatility and "native" affinity for all aggregates enables you to use damp, slick, "hard to coat" gravels and other hydrophilic aggregates.

This means you can build—

Better travel plant mix pavements
Better surface treatments

And, you get these better pavements at *lower cost* because with CATIONIC Bitumuls you can use many cheaper aggregates that are unsuitable for use with other binders.

Because the product sets quickly, construction damage resulting from sudden rains is reduced to a minimum. In addition, the fresh paving mixture can be quickly rolled and opened to traffic. All of these benefits mean an extension of the working season into marginal weather conditions that normally would prevent emulsion paving work.

Storage, handling and application are much the same with CATIONIC Bitumuls as with conventional emulsions; however, care must be exercised in the preparation of storage facilities and application equipment. CATIONIC Bitumuls is available from certain of our strategically located plants. Our engineers are ready to discuss projects which you may wish to set up for trials of this new product with specific types of aggregate.

Here are representative samples of the types of aggregate generally regarded as "difficult" by designs engineers. New CATIONIC Bitumuls readily treats all of these. When cold-mixed in a mechanical paver CATIONIC Bitumuls gives thorough stone-coating. There is no stripping in the screw; no drag under the screed. Fast initial set and rapid cure even in deep placements assure early stability; almost immediate rolling.

On Surface Treatment work with slick, hard to coat, (hydrophilic) gravel or stone chips, the new **CATIONIC Bitumuls gives you more in terms of performance** than other binders: rapid set; earlier rolling; faster acceptance of traffic; better cover-stone retention.

Call your nearest American Bitumuls office for information on CATIONIC Bitumuls.

American Bitumuls & Asphalt Company

320 Market, San Francisco 20, Calif. Perth Amboy, N. J.

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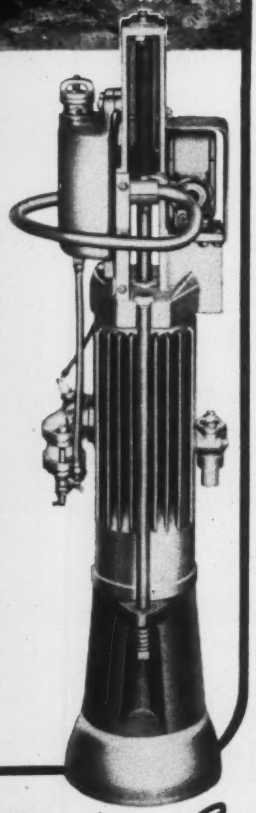
GASOLINE BARCO RAMMER

Barco Performance Pays Dividends!

Job Finished on Time!—When project specifications call for SOIL COMPACTION, Barco performance can't be beat! In test after test, Barco Rammers have demonstrated their ability to deliver 95% to 97.5% compaction (modified Proctor Method)—RAPIDLY! EFFICIENTLY! ECONOMICALLY! The Barco Rammer is especially effective for compacting fill in restricted areas—close to walls, culverts, abutments, around footings, and in trenches—on all kinds of construction jobs: Atomic Energy, Air Bases, Hydroelectric Power and Flood Control Dams, Highways, Toll Roads and Freeways, Bridges, Buildings, and Housing Developments. On area tamping, one man can average 20 to 30 cubic yards of fill per hour. On trench backfill, using lifts up to 24", the rate for 18" trench is 360 to 600 feet per hour.

Ask for a Demonstration—We will be glad to arrange a demonstration for you; see our nearest distributor or write. SEND FOR A COPY OF CATALOG 621.



BARCO *Manufacturing Co.*

514-C Hough Street • Barrington, Illinois

. . . Reader Comment

of business are willing to offer coverage.

The situation in connection with Engineers' Errors and Omissions Insurance is that there are one or two licensed companies who are willing to write this type of coverage and of course this is only an insignificant minority rather than a majority of licensed companies.

As we stated earlier, we have not analyzed the laws of each state but should you choose to do so, we feel reasonably sure that the majority of states have the same or similar laws that are applicable here on the West Coast.

J. C. FIELD
Vice-President
Philip Antrobus, Inc.
San Francisco, Calif.

Wright Tower

SIR—I would like to take exception to a statement made in the second paragraph of your article on Frank Lloyd Wright (ENR Dec. 5, 1957, p. 108). You state, "A new Wright skyscraper—19 story Price Tower—dominates without competition, a prairie landscape in Bartlesville, Okla., population 32,000."

This is not true as I see it. Three other buildings give it competition. The Phillips Building is structurally 5 ft shorter than the Price Tower; however, due to ground elevation, it is only 1 ft lower. The Adams Building is 12 stories high. And the City Service Building, although not as high, has a sign on top that is very prominent, especially at night when it is lighted up.

However, the Wright Building does dominate the skyline as far as shape is concerned; its outline is unique.

IVAN L. PFALSER
Caney, Kan.

CALENDAR

Associated General Contractors, 39th annual meeting, Dallas, Tex., Feb. 10-13.
National Society of Professional Engineers, spring meeting, Michigan State University, East Lansing, Mich., Feb. 13-15, 1958.
Association of Asphalt Paving Technologists, Sheraton-Mt. Royal Hotel, Montreal, Canada, Feb. 17-19.
National Council for Stream Improvement (of the pulp, paper and paperboard industries), annual meeting, the Waldorf-Astoria, New York, N. Y., Feb. 17-20.
American Concrete Institute, annual convention, Morrison Hotel, Chicago, Ill., Feb. 24-27.
American Society of Civil Engineers, Chicago convention, Hotel Sherman, Chicago, Ill., Feb. 24-28.
Building Research Institute, Plastics Study Group meeting, University of Houston, Houston, Tex., Mar. 5-6.
American Concrete Pipe Association, 50th annual convention, Roosevelt Hotel, New Orleans, La., Mar. 9-13.
American Railway Engineering Association, annual meeting, Sherman Hotel, Chicago, Ill., Mar. 11-13.
New Jersey Sewage and Industrial Wastes Association, 43rd annual meeting, Traymore Hotel, Atlantic City, N. J., Mar. 12-14.

Doing as much as three power shovels and a dragline, this TD-18 4-In-1 dug up, and loaded, up to 1,700 feet of old concrete pavement daily—for Henry E. Berghuis, Prinsberg, Minnesota. Famous pry-action break-out makes the big difference over other rigs!

Don't let a single-action loader hold you up...see how a 4-in-1 multiplies your profit-range by four!

You've got a gun in your back two ways—with an old-style, single-action "dip-and-dump" tractor loader!

It holds you up on price, by giving you only the one machine action for your money. It hijacks profits, by sharply limiting job range and capacity.

Now, see what a contrast, in multiplied value and earning power, an International Drott 4-In-1 offers!

4-machine utility — one-machine price!

An International Drott 4-In-1 gives you four built-in, multiple-duty, big-capacity machine actions, for only a one-machine price. Your fingertip command, through the "machine-selector" lever, instantly puts any 4-In-1 action you need at your service.

Skid-Shovel action gives you exclusive, "concrete-smashing" pry-action break-out—with famous bucket-heaping, ground-level roll-back. "Carry-type scraper" is your accurate grading, stripping, spreading, or compacting action. Clamshell action provides one-gulp "stand-and-fill" ability, plus hopper-high, self-cleanout, bottom-dumping. Bulldozer action delivers aggressive, big-yardage, earth-rolling ability.

Ease into the foam-cushioned seat—prove that your 4-In-1 investment will multiply your job-taking, money-making ability. And compare the performance protection of exclusive shock-swallowing Hydro-Spring to unprotected hose-bursting, machine-mauling "lunge-and-lift" design. Ask your International Drott Distributor to demonstrate the top buy, by far, in the construction machinery world: the 4-In-1 size that fits your needs!

Bulldozer... with clam lip up and shoes on the ground, it's a big-yardage, earth-rolling blade!

"Carry-type scraper" ...that grades, strips, or spreads with inch-close accuracy.

Skid-Shovel . . . with Drott's exclusive pry-over-shoe break-out and ground-level roll-back.

Clamshell... that fills itself in one fast gulp — gives you hopper-high, self-clean-out dumping.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

Why a TD-24 'dozes full blades *where other rigs spin and*

You don't have to jockey around, or settle for "shirt-tail" loads, or get only part-capacity performance, when you concentrate the International TD-24's full rock-slamming power—right where you want it!

You don't waste time, and fuel, and tractor life with rear-end "sluing." You don't have to "paw dirt" and then wind-up "nibbling," instead of blading out full bites. You don't lose momentum and let the blade lose part of the load every time you steer. Not with TD-24 "follow-through"!

Exclusive International Planet Power steering makes the big difference.

"Dead-track drag" is eliminated

You don't "half-kill" your power and traction to guide the TD-24, as you must with any king-size steering clutch tractor. Instead, Planet Power steering gives you full-time "live" power on both tracks while turning—or while "equalizing" to steer accurately with offset loads. And the TD-24 handles the same big loads on turns or straightaways!

Besides, the TD-24 gives you cycle-speeding, on-the-go Hi-Lo shifting. You adjust speed to the load without stopping, going forward or in reverse. You speed up the shuttle-dozing cycle, take full-time advantage of the TD-24's full capacity!

The fingers of one hand control these TD-24 performance exclusives!

Watch a TD-24 perform—see why rock-movers call it the "rock-dozing special." Visualize how this load-control and bonus capacity make the TD-24 the ideal pusher, or outstanding for non-stop, big scraper pulling! See your International Construction Equipment Distributor for a demonstration.

Put one track in high range, the other in low—and the TD-24 pushes straight ahead, despite the tremendous offset load of benching-out unshot rock strata. P. C. Cooper, Blountsville, Tennessee, first rented this TD-24—then bought it because of its rock-'dozing performance!

An 8-unit TD-24 fleet owned by Rusciano and Sons Corp., replaced 8 big competitive crawlers—because TD-24 performance "measured up" to the toughness of this big road job. There was a considerable tonnage of granite and other rock to bulldoze—on the White Plains (N.Y.) Section of the 'Cross Westchester Expressway!

"With the TD-24, I can outwork any other machine where you have to push and turn with a big load," declares Operator Dan Olmstead, for Gibbons & Reed, Salt Lake City, Utah. "The TD-24 keeps the load moving, because you don't lose power braking a track." The TD-24 is spreading rock on a tough million-yard project—widening U. S. 40 in the Truckee River canyon near Reno.

# of rock *stall!*

International® Construction Equipment

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors . . . Self-Propelled Scrapers . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

JENKINS PRACTICAL PIPING LAYOUTS

79

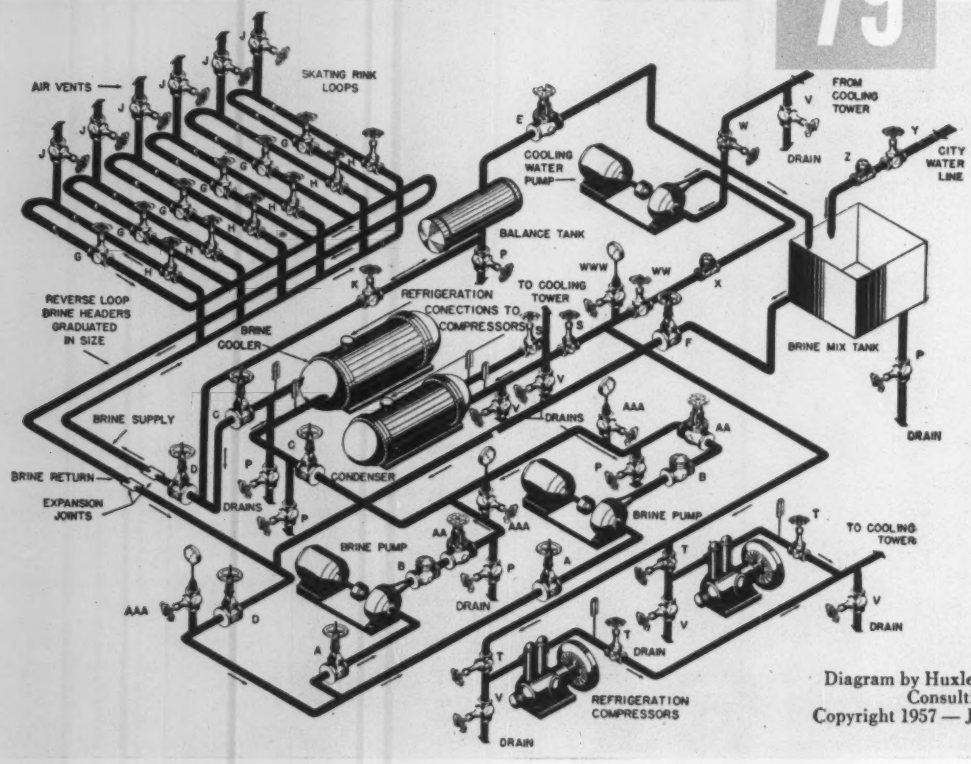


Diagram by Huxley Madeheim
Consulting Engineer
Copyright 1957 — Jenkins Bros.

How to plan piping for

AN ARTIFICIAL ICE SKATING RINK

In the increased construction of skating rinks during recent years, a closed system with a balance tank located at its highest point has been commonly installed. The piping layout presented here utilizes such a system.

This system is suitable for any of the common brines. Calcium chloride brines are the most common, but others of a non-corrosive nature are frequently used. The cooling medium, which is circulated in the rink coils to freeze the water into ice, is usually chilled by a multiple Ammonia or Freon refrigeration installation like the system in the diagram. Coils carrying the ice-making brine are generally 1″ or 1¼″ iron or steel pipe on 4″ centers, with welded connections. Each coil loop is shown with a globe valve for control and shut-off at one end. A gate valve provides for shut-off and complete isolation of the individual coil at the other end. Each coil has an air vent.

Either or both of the two brine pumps may be used, depending on specific conditions and requirements. In addition to the brine circuit, the cooling water circuit to the condenser and compressors is diagrammed. Ordinarily, valves in this cooling water circuit are bronze or iron body bronze mounted.

For systems handling corrosive brines, such as calcium chloride, all-iron valves are specified. For systems using non-corrosive brines, bronze or iron body bronze mounted valves are recommended.

Where gate valves are specified for shut-off services, rising spindle types, which indicate wedge position, have been chosen.

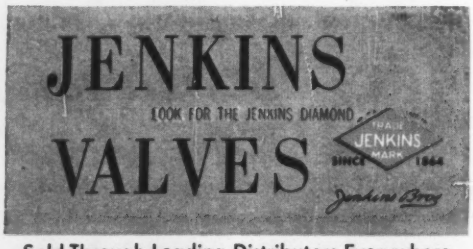
The sturdy Jenkins Fig. 241 O.S. & Y. U-Bolt all-iron gate, is favored by engineers and contractors for corrosive brine systems. *Jenkins Fig. 106-A* renewable composition disc bronze globe valve is recommended for installation on individual coils, brine coil air vents, and for other regulatory services where accurate flow control and drop-tight closure are essential.

To assure efficiency in the job when planning any major piping installation, consult with accredited piping engineers and contractors, and select your valves from the Jenkins Catalog.

Enlarged diagram and full description of this layout No. 79 free on request to Jenkins Bros., 100 Park Ave., New York 17.

Code	Quan.	Non-Corrosive Brines: Jenkins Valves	Corrosive Brines: Jenkins Valves	Service
A	2	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Brine pump flow shut-off
AA	2	Fig. 142 IBBM	Fig. 81 All Iron Globe	Brine pump flow control
AAA	3	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Brine pump pressure gauge
B	2	Fig. 624 IBBM	Fig. 85 All Iron Swing Check	Prevent backflow through brine pump
C	2	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Shut-off chiller brine flow
D	2	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Brine to rink shut-off
E	1	Fig. 142 IBBM	Fig. 81 All Iron Globe	Brine balance tank overflow control
F	1	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Brine flow shut-off at tank
G	(1 each)	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Control brine flow in individual coil
H	(1/coil)	Fig. 47-U Bronze	Fig. 240 All Iron Gate	Shut-off brine flow in individual coil
J	(1/coil)	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Control brine coil air vents
K	1	Fig. 106-A Bronze	Fig. 81 All Iron Globe	Brine balance tank flow control
P	6	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Control brine drains

Code	Quan.	Jenkins Valves	Service
S	2	Fig. 47-U Bronze Gate	Shut-off condenser cooling water
T	4	Fig. 47-U Bronze Gate	Shut-off compressor cooling water
V	6	Fig. 106-A Bronze Globe	Control fresh water drains
W	1	Fig. 47-U Bronze Gate	Cooling water pump flow shut-off
WW	1	Fig. 106-A Bronze Globe	Cooling water pump flow control
WWW	1	Fig. 106-A Bronze Globe	Cooling water pump pressure gauge control
X	1	Fig. 92-A Bronze Swing Check	Prevent backflow through cooling water pump
Y	1	Fig. 106-A Bronze Globe	Control water supply makeup
Z	1	Fig. 92-A Bronze Swing Check	Prevent backflow into water supply



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THE CONSTRUCTION WEEK

HIGH ARCH FOR OROVILLE?—Although financing and water rights questions are far from settled, California water officials are restudying details of the big Feather River project. Under consideration as substitutes for the 14 million cu yd concrete gravity design for 700 ft plus Oroville Dam are two other schemes. One is a combination concrete arch and buttress type dam. The other, which might be cheapest is a 78 million cu yd rockfill. Also being studied is use of pumped storage, powered by low-cost, off-peak steam plant energy, to furnish water in the Oroville reservoir for peak load generation.

STRANGE TWIST—Del E. Webb, co-owner of the New York Yankees baseball team, was awarded the contract for converting Los Angeles' Memorial Coliseum into a baseball park for the Dodgers. Actually, the contract went to the Del E. Webb Construction Co. Dodger President Walter O'Malley estimates the conversion will cost over $200,000.

MUSCLE FLEXING?—New York City's multi-million construction industry was hit on Monday by a teamsters' strike that could snowball into critical proportions. Deliveries of read-mix concrete, sand, gravel and building materials stopped in a three-county area as Local 282 pulled its men off their jobs when contract negotiations in the sand and gravel industry broke down. Main dispute in negotiations that have been going on since last May is over seniority rights and lunch time scheduling. The strike, which will adversely affect the rest of the building trades, is considered by some as a teamster answer to its ouster from AFL-CIO as well as part of a power struggle between local Hoffa supporters and dissidents.

NEW ORGANIZATION—A new entry in the list of organizations important to the construction industry was born at Chicago last week, with the formation of the Construction Writers Association. Some 27 men, representing 15 of the more than 100 journals serving the industry, voted to form the organization to "improve the means and methods of reporting and editing news of the construction industry, and to serve the industry and the nation." Objective is a professional society of writers and editors, with membership (on an associate basis only) open also to public relations men who specialize in construction. Membership, on an individual—not magazine—basis, will include editors and writers in the U. S. and Canada. First president is Edward Weilepp, editor of KANSAS CONSTRUCTION MAGAZINE, of Topeka. Vice president is J. T. Jenkins, editor, the AMERICAN ROAD BUILDER, Washington, D. C.; secretary-treasurer is George E. Symons, editor of WATER AND SEWAGE WORKS, N. Y.

Why you're smart to specify

HYATTS for replacement:

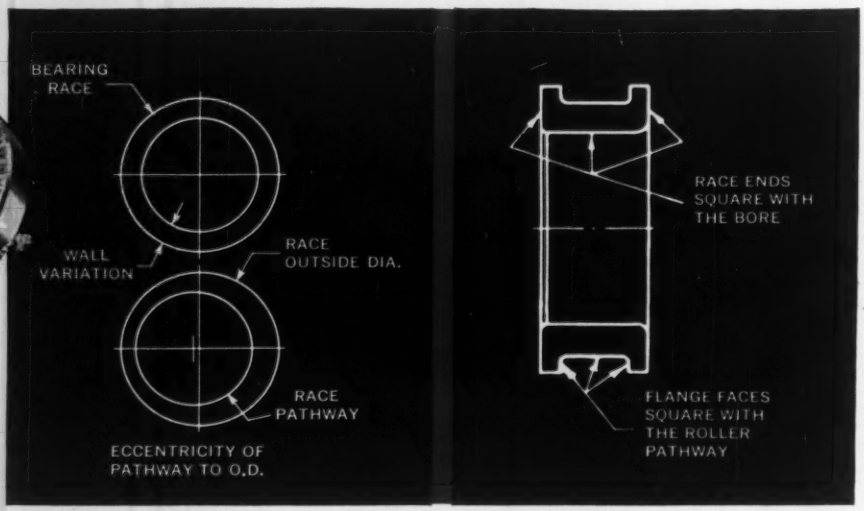


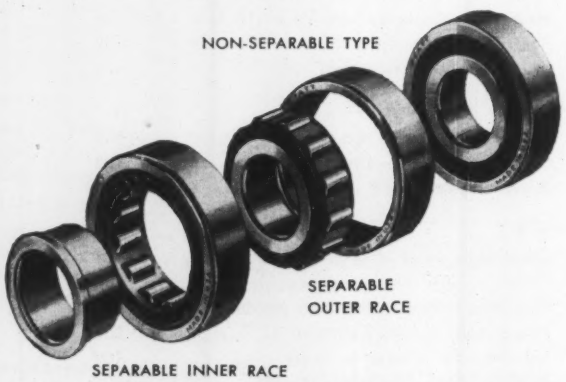
FIGURE 1 FIGURE 2

CLOSE CONTROL OF INTERNAL DIMENSIONS MEANS LONG, TROUBLE-FREE BEARING LIFE

The running accuracy and smoothness of a roller bearing is governed by the tolerances of its internal dimensions and clearance. Internal dimensions include concentricity of race diameters and squareness of all radial and axial surfaces, as briefly explained at right. These are so closely controlled in HYATT Hy-Roll Bearings that HYATTS run smoother and quieter, last longer, and prevent troubles caused by the excessive heat and vibration sometimes generated in bearings.

Be sure you get genuine HYATT Hy-Roll Bearings from your industrial bearings distributor. Then you're sure of the *lowest bearing cost per hour of service!* Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

Concentricity of race diameters is usually defined in terms of wall variation (Figure 1) of the individual races, and radial run-out of the assembled bearing. Squareness of race and roller ends and flange faces is vital to prevent roller skewing with consequent heating and noisy operation. Figure 2 indicates the race surfaces which must be square with each other within minute tolerances depending on the grade of the bearing. The roller ends must also be square with the diameter for the same reason as above. End square tolerances are usually less than .001" for the most frequently used sizes.



1908–1958 GM FORWARD FROM FIFTY

SEE YOUR INDUSTRIAL BEARINGS DISTRIBUTOR GM PARTS SALES

HYATT HY-ROLL BEARINGS FOR REPLACEMENT

WASHINGTON OBSERVER

- **AFL-CIO won't force end of pacts**
- **House delays decision on Hells Canyon**
- **Ceiling on Engineer public works lifted**
- **FHA seeks funds to process more applications**

● **The AFL-CIO wants to isolate James R. Hoffa and the teamsters union, but still hopes all-out war won't be necessary.** Forcing Hoffa out of the federation's Michigan Labor Alliance was step one. Next, the federation leaders will grant charters to teamster locals that want out from Hoffa's rule.

The other side of the coin: AFL-CIO won't force an immediate dissolution of mutual-aid pacts between AFL-CIO unions and the teamsters in heavy construction. A four-way pact between the teamsters, carpenters, laborers and operating engineers already has been renegotiated. The machinist pact with Hoffa's union is up for an extension, but machinist leaders are split on what course to follow. Machinist President Al Hayes is head of the AFL-CIO Ethical Practices Committee that caused teamster expulsion from the federation.

Operating engineers hope to avoid expulsion, hope for a cleanup that will spare them the teamsters' fate. However, this will wait on the health of engineers' president William Maloney, the chief target of Sen. John L. McClellan's investigators. Mr. Maloney became seriously ill in Miami during the AFL-CIO Executive Council meeting. Attempts to get his resignation have failed.

● **There will be no House decision on a high federal dam at Hells Canyon until summer.** The Senate passed a bill last session calling for a $300 million high dam at Hells Canyon, aimed at preventing Idaho Power from exercising its license to put a low structure at Hells Canyon in the upper stretch of the Snake River, on the Idaho-Oregon border. The House Interior Committee was due to vote on the Senate bill last weekend, but voted to put off the showdown until June 2.

Public power advocates engineered the delay. They're counting on help from Interior Secretary Fred A. Seaton and the Army Corps of Engineers, which is shooting for June completion of a new study of Northwest power needs and potentials.

● **Budget Bureau's ceiling on Engineer civil works spending for the current year has finally been lifted.** Up to now, all projects have been operating under White House-imposed limitations—most of them being considerably less than the spending Congress allowed for this year.

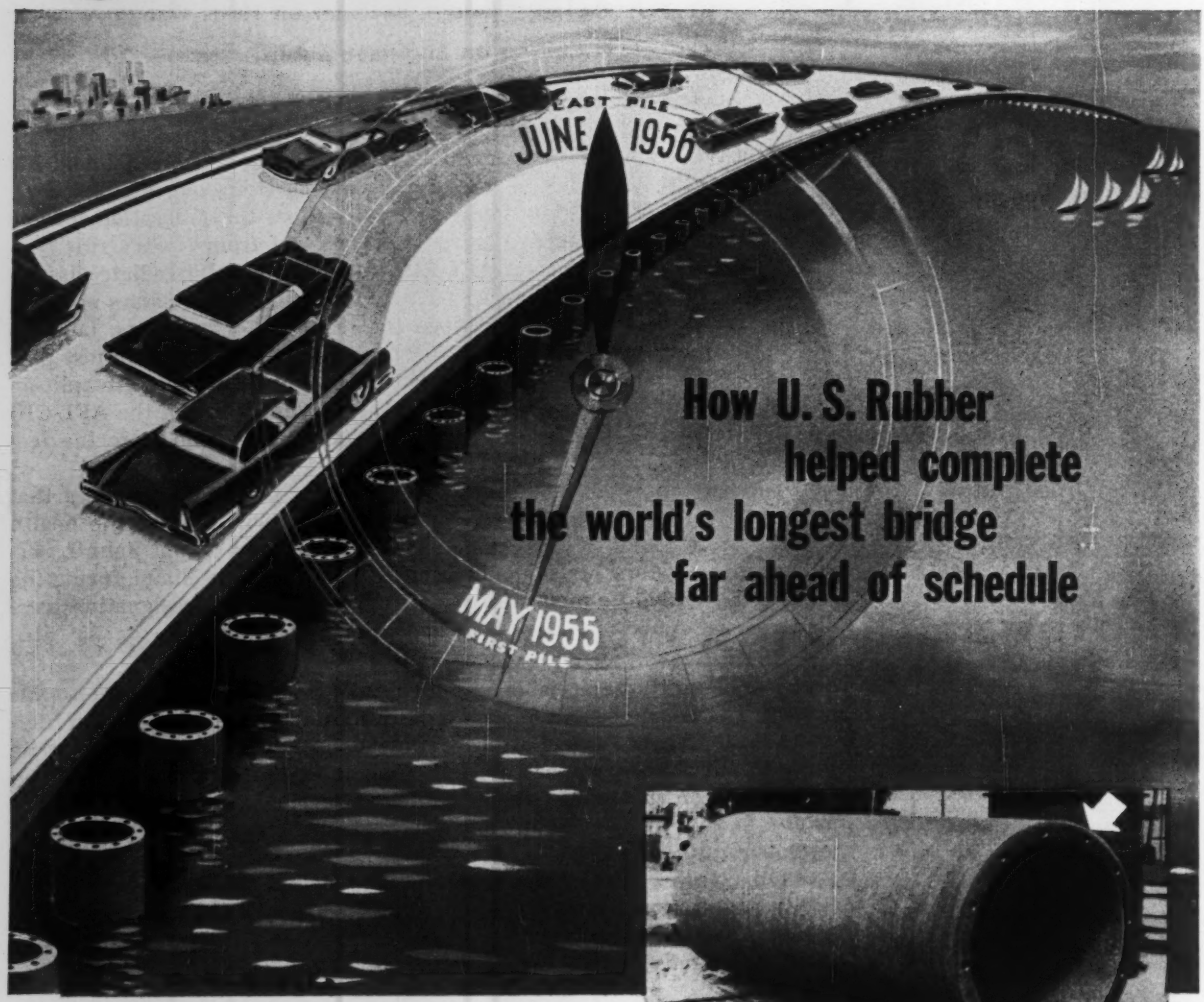
Now, the Engineers can tell contractors to speed up—with some exceptions. The new rule is: Spending on all going contracts will be at least the amount necessary to avoid shutdowns, which would otherwise have occurred on some jobs before June 30.

On 1958 new starts, the Engineers are ordering that spending between now and July 1 be held to "token" amounts. Contracts, however, are going to continue to be awarded.

● **FHA is after new money to be spent immediately to staff up its field offices for faster handling of mortgage applications.** Last week, economist Miles Colean, told Congress that FHA's inability to process papers quickly could be the critical factor preventing housing starts from breaking one million this year.

This year, odds favor FHA getting some of the additional money it is seeking. Heretofore, Congress has cut FHA administrative funds.

US RUBBER ENGINEERED RUBBER PRODUCTS

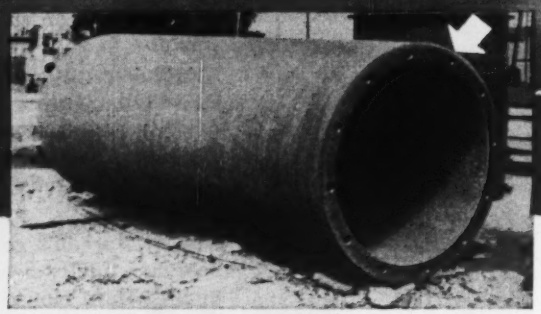


How U. S. Rubber helped complete the world's longest bridge far ahead of schedule

The Lake Pontchartrain Causeway at New Orleans is 24 miles long! That's a lot of bridge over the water. Using special assembly-line construction methods, the contractor turned out the job in one-fourth the time it would've taken had ordinary construction methods been followed.

U.S. Rubber's special #4830 Rubber Tubing was one of the big reasons why this gigantic project was completed so quickly. With this tubing, it was possible to prefabricate, in sections, the almost 8 miles of cylindrical concrete piling that supports the bridge. Here's how they did it:

The U. S. Rubber Tubing—75,000 feet of it—was used to pre-form round channels in the pile sections when they were cast. When the concrete hardened, the tubing was removed. Then the sections—usually six—were joined to make a single pile and high-tensile stressing wires were inserted through the channels. Naturally, the rubber tubing had to hold exacting tolerances as the concrete set so that the channels' diameters would always be precisely uniform for the entire length of the finished pile. And the tubing had to be strong, easy to handle, and abrasion resistant in order to be used over and over again.



54" o.d. section of finished pile showing precise round channels formed by U. S. Rubber Tubing. There are 12 of these, cores in every section. Each core has a diameter of 1.375 inches.

There are many construction jobs right now where U.S. Engineered Rubber Products are helping to make shortcuts. For complete information and expert engineering assistance, contact us at Rockefeller Center, New York 20, N. Y.

US RUBBER

Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U. S. Rubber's New Exhibit Hall, Rockefeller Center, N.Y.

AED hears construction equipment outlook:

Dealers See Tougher—but Better—1958

The year 1957 was a tough one for the construction machinery industry but it wasn't so tough as many an observer thought. The year 1958 will also be a tough one—but it'll be better than 1957.

This year will definitely be a "hard sell" year—and the equipment dealers are gearing themselves to meet that challenge, searching for better salesmen and better sales methods.

That's a consensus of distributors who attended the Associated Equipment Distributors' 39th annual meeting in Chicago last week.

It isn't echoed as optimistically by the manufacturers themselves, who also were out in force among the more than 3,500 men attending the four-day meeting.

Their viewpoints colored by oversized inventories in many cases, the manufacturers were inclined to take a dimmer view of 1958 prospects. But they were giving evidence of moving in fast on the sales situation, with signs of significant moves to aid their dealers in financial matters.

There was evidence—in one speech, at least—that Congress is aware of the problems of smaller equipment firms, and may do something this session to ease what the speaker called an inequitable tax burden.

There were other undercurrents at the meeting too: The undercurrents, as always, centered around financing—with most of the dealers making no secret of their dislike for the "lease-purchase" arrangements they've been forced into by their contractor-customers, but with manufacturers generally looking with some favor on the idea.

There were some new products shown in the exhibits at a pocket-sized road show, and there were other announcements of new lines ready to go on the market.

• **How good was '57?**—Wasting no time in preliminaries, the dealers focussed their attention on 1957 in the opening speech by L. Miner Doolen, retiring president.

Said Mr. Doolen: A just-completed AED survey of its members, in all 14 regions into which the organization divides the U.S., showed 1957 sales of new and used equipment were off by about 7% compared with 1956. Only one region showed sales equal to 1956; nine showed drops ranging from 2% to 10%; four showed drops between 15% and 23%. Some 66% of all members surveyed reported total sales below 1956—and many reported that if it were not the price increases that boosted dollar volumes, the average drop would have been more.

"Out of this experience," added the outgoing AED leader, "emerges the clear recognition that our fortunes are closely tied to our trade-in practices and policies, and to our ability to move our used equipment inventories on a sound basis . . . (but) I feel that 1958 can be at least moderately successful and rewarding for those of us who lay our foundations carefully, plan for it, study, and adapt operations accordingly. . . . We are today on the threshold that we thought we had achieved a year ago. . ."

• **How to make '58 better**—This preoccupation with used-equipment inventories and with financing methods and the help—or lack of it—from the manufacturer, was echoed immediately and insistently both in the few general sessions, and in talks among the men themselves.

(Continued on page 22)

. . . Dealers look for better year

The dealers turned part of their complaint on the manufacturers with the demand that the makers stand behind their completed machines—not take refuge behind a series of warranties offered by makers of component parts.

"Much of the service work we do," said S. D. Means, of Illinois Contractors Machinery, Inc., Elmhurst, Ill., "is due to factory errors. The manufacturer must place a full warranty on the complete machine. If a customer has to depend on one warranty for the engine, another for the tracks, a third for some other part—you don't have a happy customer. And it's a headache that comes to us."

But the biggest problem, all agreed, is used equipment that must be taken in if new equipment is to be sold. How to keep such used machines from glutting the market and overbalancing the pricing structure occupied Paul B. Reinhold, Atlas Equipment Corp., Pittsburgh, and P. E. MacAllister of MacAllister Machinery Co., Indianapolis.

Said Mr. Reinhold: "We must absorb what used equipment we are compelled to take in on trades, without it being devastating to our balance sheet." Said Mr. MacAllister: "We can't lick the problem—at best, we must learn to live with it. Three things are needed, as I see it: (1) Publicize the fact that each piece of machinery has a specific value; (2) we must have more cooperation between distributor and manufacturer at the local level; (3) the real challenge is for top management to roll up its sleeves and get on the job—help us to solve the problem."

• **Hard sell**—One answer for this dilemma was posed by R. N. McMurry, personnel management consultant of Chicago, who dwelt hard on the need for the "hard sell" and the careful selection and training of sales staffs.

"There is a definite shortage of trained equipment salesmen at both the manufacturer and the dealer level. To improve this situation there should be improved recruitment programs and better screening procedures to select the salesmen, and more comprehensive and down-to-earth training programs."

Because of the now-normal industry practice that the dealer alone assumes the entire burden of financing deals his customers want to make, the distributors were obviously casting about for ways to handle this matter in such a way as to ease the load on their own credit.

• **Eased financing**—In some cases, the manufacturers have taken steps to help—though it was obvious that the dealers aren't universally pleased. J. I. Case, for example, recently began advertising a lease-purchase plan under which a contractor can lease a piece of equipment from a dealer (with an option to buy), paying monthly rental and then either return the machine, or purchase it, less the rental he has already paid. The Case company, through a financing division, will handle the "paper" on the deal or, if the rented machine is returned without final purchase, will refinance the equipment with the dealer.

H. D. Anderson
AED's new president

Several other manufacturers have already entered somewhat similar arrangements.

But the dealers themselves almost unanimously declared that they fight shy of such deals if they can. "It is a gain for the contractor," said one dealer, "because he can charge off the rental payment as operating expense, and keep more cash in his pocket for emergencies. But for the dealer, even if the manufacturer helps, it means a cut in his profit—and the very good possibility that he'll wind up having to buy a lot of equipment that must be classed as used, even if it's only actually been used for a couple of months."

Despite their personal feelings, however, most of the distributors admitted that they are making lease-purchase deals—some of them quite fantastic—in order to satisfy old customers and make new ones.

• **New and different**—Among the new or improved versions of machines shown or announced during the meeting were:

A concrete spreader developed by the manufacturing division of Maxon Construction Co. of Dayton, Ohio. Used in conjunction with the company's patented Dumpcrete truck bodies, the new spreader eliminates the traditional paver, and the spreading of concrete within the road form by a screw or blade spreader. The new spreader is essentially a 4½ cu yd bucket, riding a track transversely across the prepared roadbed, on the metal side forms. The bucket may be set to deposit concrete on the subgrade to exact depth—even to center crown—without the need for further spreading. The bucket can be loaded from either side of the roadbed by Dumpcrete trucks chuting directly into it. A vibrator rides at either edge of the rig to cover edges of the finished road. Principal advantage, according to the manufacturer, is lessened rehandling of the concrete, plus added speed and saving in labor and equipment.

Cleveland Formgrader showed a pin-puller for removing form stakes on highway and other construction jobs. The small machine (on flanged rubber wheels), made to be pushed by a workman, can exert a pull up to 3,000 lb.

A boon to builders is a self-anchoring, all-steel, welded wall form that can be used to form a vertical outside face and a sloping inside face for foundation walls above ground. Self-locking steel pins anchor the forms against uplift and concrete pressure, according to Symons Clamp and Mfg. Co., Chicago.

Clark Equipment announced its new series of 600 hp diesel-driven rubber-tired dozers. Principal application being for push-loading of scrapers, the machine is a forerunner of a full line of buckets and scrapers planned in this power class.

Under the heading of improvements is the Felker DI Met (of Torrance, Calif.) 25 to 36 hp concrete saw, which includes a Vickers fluid coupling.

And under the heading of new entries in the construction field comes the Utica Division of the Curtiss-Wright Corp. of Utica, Mich., which announced that it had acquired full distribution and manufacturing rights for the Mercedes-Benz line of diesel engines which are said to produce a far lower weight-to-horsepower rating than comparable U. S.-designed motors. The new line ranges from a four-cylinder, 36 hp engine that weighs 400 lb to a V-12, 1,385 hp rig weighing 6,612 lb. Curtiss-Wright is now working to "Americanize" standard fittings so that the machine can be adapted simply for use on construction and vehicular equipment.

• **Elections**—At final sessions, the distributors elected H. D. Anderson, of Rish Equipment Co., Bluefield, W. Va., as president. Other officers elected included F. J. Fitzpatrick, Parker-Danner Co., Hyde Park, Mass., executive vice president; and J. R. Borchert, Borchert-Ingersoll, Inc., St. Paul, secretary-treasurer.

CCA Sees Lower Profits in '58

Canada's construction parliament—as the annual meeting of the Canadian Construction Association has come to be known—this year took stock of the Dominion's greatest industry, with the prospect of a year ahead equal in dollar volume to 1957.

Meeting in Quebec City last week for its fortieth annual gathering, CCA, did no looking back, only ahead.

Tullis N. Carter, of Toronto, in his presidential address, outlined this picture of immediate construction prospects in Canada: He envisages an increase in roadbuilding and homebuilding in 1958—with the federal government actively participating in both these fields—but a drop in industrial construction. His predictions were confirmed by the statements of Work Minister Howard Green who said that the federal government certainly intended to continue cooperating in highway construction in Canada after the Trans-Canada Highway is complete. The Minister also looked forward to steady activity in homebuilding with a goal of 140,000 new starts anticipated for 1958.

Canadian construction costs might be expected to rise slightly, due to increases in wage rates already known. This will call for increased efficiency on the part of the entire construction industry; in this the CCA president includes the engineering and architectural professions, where some increase in efficiency could (he thinks) be achieved.

It seems clear that there will be less profit in 1958—more failures. The high percentage of industrial failures due to construction companies coming to grief was a serious matter to this meeting of CCA. Figures released recently for industrial statistics of 1955 showed that building firms were responsible for 27% of the total failures in Canada in that year. Closer attention to bidding was stressed.

• **Construction trends, Canadian**—Present trends of construction in Canada were reflected in the address given to the general contractors sectional meeting by R. G. Johnston, President of Defense Construction (1951) Limited, the federal government construction agency for defense and special projects. Mr. Johnston anticipated a modest increase in DCL contracts to be awarded in the coming year. He explained that, although DCL expenditures had been originally estimated at $100 million for its first three years, in actual fact DCL had been responsible for $1.2 billion worth of work in its seven years of operation. This represented 50% of all Canadian federal construction work, exclusive of housing and other special operations.

Special recent DCL assignments mentioned by Mr. Johnston include the study of the Peace River Bridge failure, the provision of the emergency access road to the railroad bridge being used to keep open the northwest highway, and the construction of the natural gas pipeline across northern Ontario, this being that part of the Trans-Canada pipeline project in which the federal government it participating.

• **Canadians abroad**—For the first time at a CCA meeting, operations of Canadian contractors in foreign lands came in for extended notice—an indication of the maturity reached by the construction industry in Canada. Tribute was paid to work done by Canadian firms in carrying out 11 major projects under Canada's "Colombo Plan," in which the Dominion is assisting countries of the Far East (India, Ceylon and Pakistan). Work completed, now amounts in value to more than $180 million.

CCA's materials and supply section continues its study of new building materials and held its second symposium on the subject.

New ideas in the use of steel, glass, plastics and insulation as building materials were reviewed by four expert speakers and discussed by an interested audience. The growing use of high tensile bolts and of plastic design in steel, the potential presented by moulded plastics in a wide variety of fields, the extensive use of glass not merely as decoration but as a structural material, and the new types of materials now in use as insulation were some of the topics touched upon in a presentation which, together with the five similar papers of last year, was described as one of the best reviews of new developments.

• **Code approved**—A revised code, now called a "Code of Practice" was introduced and subjected to rigorous discussion by all sections of the CCA. With some amendments, it was finally unanimously approved by the whole association. It puts teeth into the earlier code, now stating that certain practices, with regard to bidding procedures, shall be followed by members of the CCA, instead of using the word "should" as in the earlier code. The executive of the association is now empowered to take appropriate action in connection with any violations of the new code.

H. J. Ball, of Ball Brothers, general contractors of Kitchener, Ontario, succeeded Tullis Carter as CCA president. E. V. Gage, of A. F. Byers Ltd., general contractors of Montreal, was elected first vice president and J. E. Harrington, also of Montreal, second vice president. O. Clayton of Fort William, Ontario, was elected chairman of the general contractors section; Norman A. Smith of Toronto was elected chairman of the trade contractors section.

Educators Meet With Industry

Members of the 64-year-old American Society for Engineering Education gathered at the University of Michigan last week for their first post-Sputnik (pre-Explorer) college-industry symposium.

Though Sputnik was refreshingly absent from prepared texts—the Explorer was not yet aloft—a lively press session with program principals prior to the conference showed that ASEE reaction to the Eisenhower Administration's federal scholarship plan was cautiously negative.

As one man said privately: "We hesitate to even discuss 'forms' of government aid because some of us feel that there would be strings attached to any such program. Also, this is an industry-educator conference. Industry feels that it is cheaper to help support our schools with tax-exempt dollars than to pay taxes to the government for doing it."

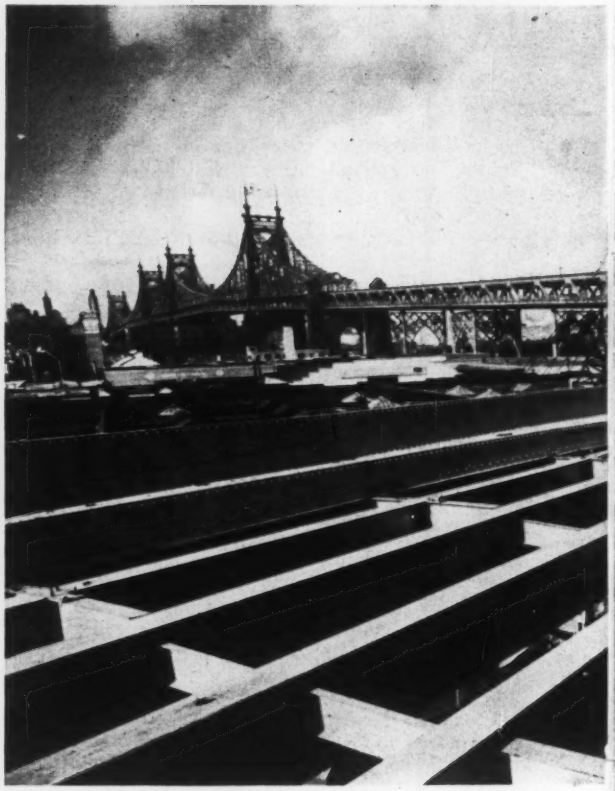
All agreed that the biggest problem with any vast scholarship program, public or private, is that a student's tuition fees average about half the total cost of training him. Any realistic approach, therefore, must include matching funds to the school. Industry realizes this, but apparently the federal government does not.

One possible solution came privately from Russell H. Bintzer, who hopes soon to institute the "educational tithe" at Carnegie Tech where he is vice-president and fund raiser. A student would receive his bill divided into two columns; one would show tuition due and the other, the difference in actual cost. After graduation, there would be a moral obligation to pay off this difference.

• **Teachers the real need**—Scholarships seemed secondary in importance to finding teachers to support the whopping 70% increase in enrollment expected in the next 15 years, a figure arrived at before the Eisenhower scholarship proposal.

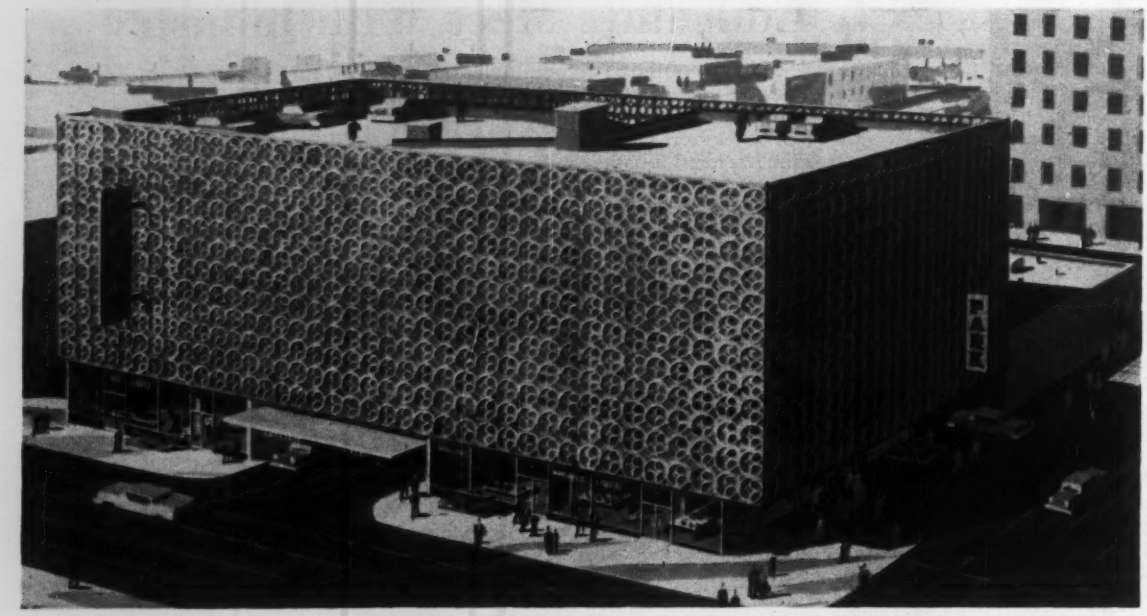
One man proposed that the government could make the profession of teaching engineering more attractive by endowing both graduate work and the first few financially meager years at the blackboard. He noted that engineering undergraduates don't "think teaching" now but that their pure science counterparts seem to.

Engineering News-Pictures



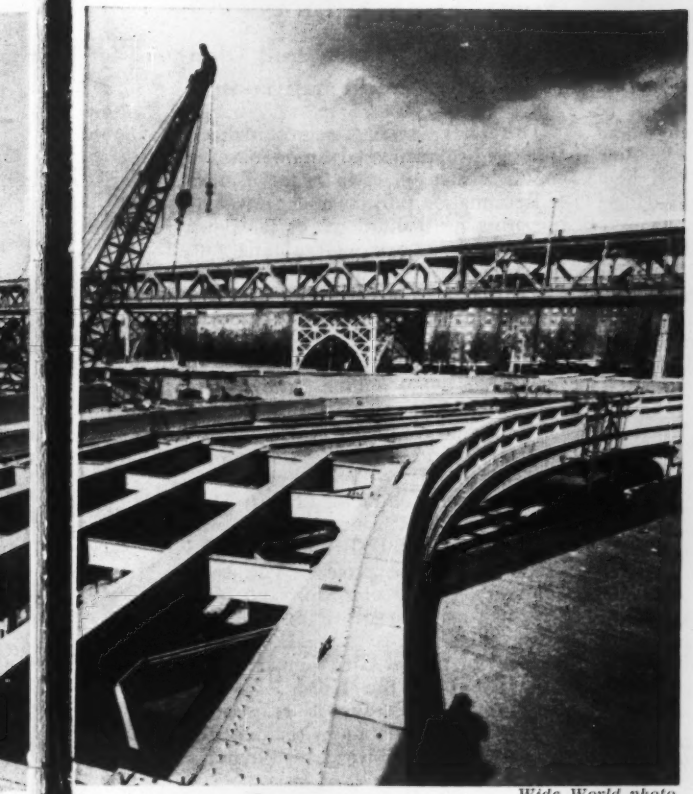
Old Bridge Gets New Look

New York's Queensboro Bridge, long an engineering and civic landmark (its 1,182 ft cantilever arms are connected directly by rocker arms, with no suspended span), is rapidly assuming a new look to accommodate modern traffic. New approaches shown here rise to 60 ft above street level to reach upper deck, which is being repaired to add to the structure's traffic capacity.



Gold-Colored Rings to Enclose Garage

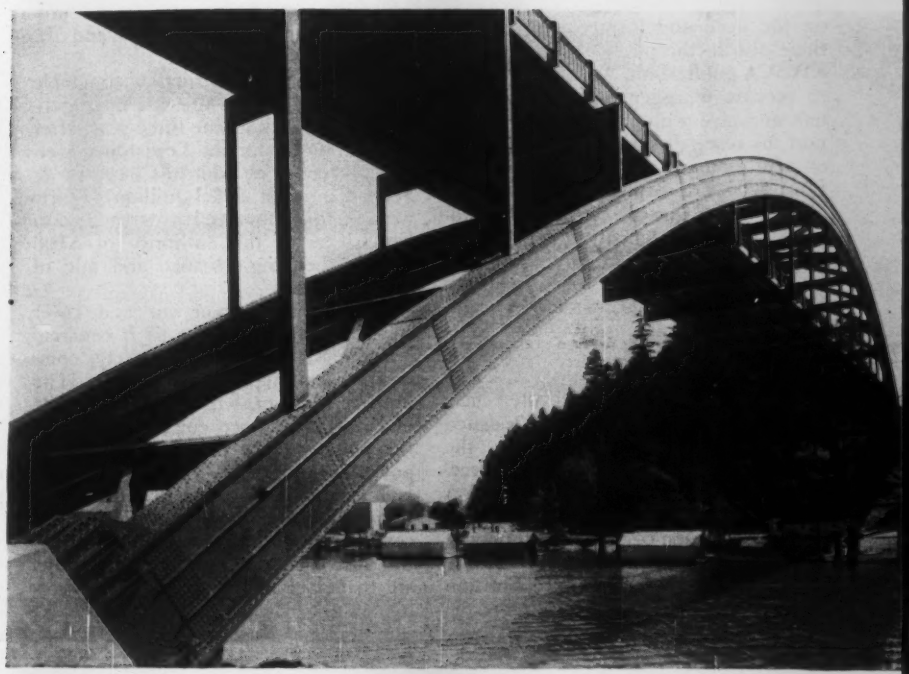
Gold-anodized aluminum rings will make decorative as well as practical walls for a 7 story, 400 car parking garage under construction in Dallas. Openings within and between the rings will serve to ventilate the interior. Framed in reinforced concrete, the building will have 14 ramp-connected parking levels. Canal-Randolph Corp. of Chicago is the owner. Architects are A. J. Greenberg and Mark I. Finfer, Chicago, and Jacob E. Anderson, Dallas. James Stewart, Dallas, is the contractor.



Wide World photo

Windbag Erects Homes

A giant rubber bag accomplishes in only a few minutes a job that formerly took 3½ hr and required 16 men or a crane. The inflatable bag, developed by B. F. Goodrich Aviation Products, is helping to erect more than 100 demountable homes, made by Transa Homes Corp. for construction workers at the Glen Canyon Dam site, Page, Ariz. Walls, floor and roof of the homes unfold to form a 520 sq ft house. The deflated bag is positioned under the roof and inflated with air under less than 1 psi to a height of 11 ft, thus raising the roof. When the 15-ft-long bag is deflated, the floor and walls drop into position.



High-Level Bridge Finished

This fixed steel-arch bridge has been completed for Skagit County, Wash., as a replacement for a swing span in use since 1916. Built at a cost of $633,000 over the Winomish Channel at La Conner, the structure has a main span of 550 ft. The arch ribs of the two-lane bridge are 2½ ft wide and 7 ft deep.

NEXT AWWA PRESIDENT . . .
Lewis S. Finch

Dollars for PR

AWWA votes $40,000 for public relations program, reapproves certification

Meeting in New York last week, the board of directors of the American Water Works Association approved a $40,000 public relations program for this year and re-affirmed its order for a strong materials and equipment certification program.

The public relations program represents a healthy sum for the 13,000 member AWWA and will be used to hire three additional people who will indoctrinate water men at the local level on the need and means of presenting their case to the public; to expand the AWWA publication, "Willing Water"; to prepare management training manuals and give a modicum of direct support to research efforts. The $40,000 of new money for this year will come from AWWA surplus funds.

The controversial certification program, which has remained stalled since the annual convention board meeting in May 1957, will get a push from the board's new directive which is essentially the same as approved last May. Under it, manufacturers may affiance to AWWA that their products meet AWWA specifications and then may use an AWWA seal on them. Designed to protect smaller water agencies, the program would have no formal enforcement (such as once proposed AWWA testing) but would rely on competitors to spotlight non-conforming products.

In another important action, the AWWA board registered its opposition to legislation permitting or requiring the opening of water supply reservoirs to recreational use, stating that the decision in each case should be left to water utility management. The board recommended that distribution and terminal raw water reservoirs (near the treatment plant) never be opened to recreation; upland reservoirs might be opened if the water receives subsequent treatment in addition to chlorination.

Official nominees for AWWA high office are Lewis S. Finch, chief engineer of the Indianapolis Water Co., as president; Lauren W. Grayson, chief engineer and general manager of the Public Service Department of Glendale, Calif., as vice president; and William J. Orchard, retired general manager of Wallace & Tiernan, Inc., Belleville, N. J., to continue as treasurer.

Niagara Licensed

FPC insists upon covered conduits all the way

The Federal Power Commission on January 30 granted the Power Authority of the State of New York a final license to construct the $600 million Niagara Power Project. However, FPC specified that the 4 mile waterway between the intake and the pump storage plant was to be all in cut and cover conduit.

Meeting late the next day, PASNY accepted the license and indicated construction would begin at the site in early April. The authority also voiced regret that its proposed plan for 7,000 ft of open canal at the lower end of the 4 mile waterway was rejected, thus adding about $25 million to the cost of the project.

The commission estimated that the added cost would increase energy production cost only between .09 and .12 mills per kwh.

The PASNY construction timetable calls for power from the first main generator to be on the line three years after contract award for the Lewiston powerhouse (to go to Merritt-Chapman & Scott Corp. for $98.3 million). Early work is to be financed by a short-term bank loan to the authority of $100 million, pending issuance and sale of revenue bonds.

FPC insisted upon cut and cover conduits (to be two 46 x 69 ft concrete horseshoes) for reasons of safety, community planning and civil defense. The project, however, will still have 1 mile of 200 ft wide open cut canal between the pump storage plant and the main powerhouse.

The question raised by the FPC staff earlier over the arch design of the covered conduits was not resolved in the FPC license approval. Final plans are to be submitted to FPC after corroboration by three independent consultants hired by PASNY (ENR Jan. 9, p. 23).

Need That Money

Work at Trinity and Glen Canyon could halt soon

This week, while Congress deliberates over supplemental appropriations, contractors at the two biggest Bureau of Reclamation projects under way were preparing for a shutdown or slowdown as available money was running out. However, in Washington, there was optimism that the needed money—$10 million for each project—would be forthcoming.

At the Trinity River Project in California, the $48.9 million Trinity Dam contract and the $36.6 million Clear Creek tunnel contract will definitely be stopped if no additional money is voted, according to the contractors.

The tunnel contractor (Trinity Dam Contractors) had planned to halt work February 1 until USBR diverted $2.3 million from other projects. The dam's contractor (Shea-Kaiser-Morrison) plans to stop work March 1 if no money is forthcoming.

The situation at Glen Canyon Dam, largest unit of the Upper Colorado River project, is almost as serious. Bureau of Reclamation is scraping the bottom of the fund barrel for the prime $108 million dam and powerhouse contract (Merritt-Chapman & Scott Corp.).

Unless there is approval of the $10 million supplemental, the contractor will have either to finance ahead on his own or curtail work. The money pinch is so bad that the bureau is deferring all work on other Upper Colorado contracts not of highest priority.

Briefs

• **More Philadelphia garages**—Two sites have been purchased by Philadelphia at a cost of $2.2 million as locations for parking garages. Construction of both facilities will start in 1958 and will bring to four the number of garages put into service in downtown Philadelphia by the city's parking authority.

• **BRI Conference**—"Plastics in Building Illumination" will be the theme of the Building Research Institute conference scheduled for March 5 and 6 at the University of Houston, Houston, Tex. Speakers will report on the objectives of illumination, plastics used in illumination today, and future uses of plastic applications.

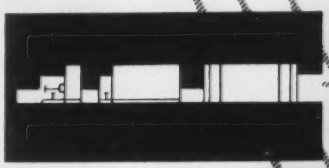
• **Another dam for Dallas**—Permission to build a $26 million reservoir on the east fork of the Trinity River is being sought by the City of Dallas after a three year study. Some 490,000 acre-ft of water would be impounded.

AEG

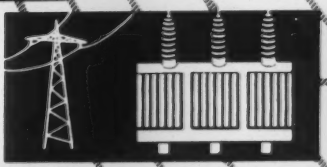
ELECTRICAL PLANT AND EQUIPMENT OF ALL KINDS

Design — Manufacture — Erection

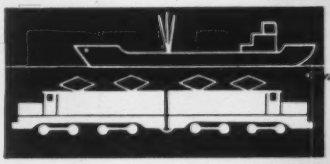
Power generation



Power transmission and distribution – Power conversion

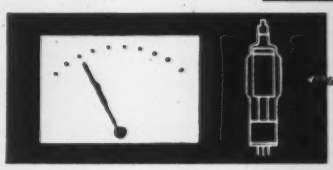


Electrical traction engineering
Marine engineering
Airfield equipment

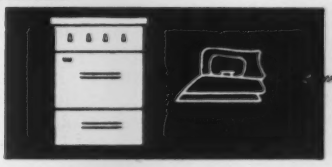


Electrical equipment for industry

Electronics
Measuring – Regulating – Testing



Appliances



AEG
means ELECTRICITY

7216a

ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT

Berlin (West) EXPORT DEPARTMENT Frankfurt (Main)

Desirability of natural light in shops and classrooms of new vocational printing school in New York City leads to use of glass-block walls for 400 ft building

SCHOOL OF PRINTING in New York City consists of a seven-story structure containing shops and classrooms and a brick-enclosed wing with a gym and auditorium.

Glass Blocks Enclose Seven-Story School

The School of Printing now being constructed on New York City's west side is a 7 story structure almost completely enclosed in glass.

Glass block was used in the exterior of the structure primarily to provide as much natural light as possible in the shops and classrooms—a desirable condition for printing operations. The designers considered the attractive appearance and low maintenance of the block as additional advantages.

The school, 400 ft long, contains 26 apprentice shops, 35 vocational high school shops, 4 apprentice training rooms and 24 academic classrooms. An auditorium-gymnasium wing, faced in brick, joins the main building at right angles.

At capacity, more than 2,700 students in both day and evening classes will be trained as high school vocational students, industrial apprentices and journeymen printers, filling the educational needs of the printing industry.

• **Walls made of glass block**—Except for a 3 ft wide strip of clear glass at eye-level in each story, glass block set in aluminum frames make up the exterior walls. Over 43,000 of the 12 in. square block were used for the school.

The aluminum frames for the block are made of channel-shaped members. Each frame, one story high and one bay wide, is set forward from the exterior column line to allow steam returns to run down the outside face of the columns.

The $3\frac{7}{8}$ in. thick block are cushioned by a glass-fiber matting placed in the mullion channel. Horizontal mortar joints are reinforced with wire fabric.

Expansion joints in the frames make the exterior walls a flexible envelope, able to relieve thermal stresses and independent of the structural frame.

A screen of green-colored glass fiber at the center of each block acts as a filter and helps to reduce heat transmission and glare from sunlight. The block are directional; those above the clear windows throw the light up against the ceiling; whereas those below the vision strip direct the light downward.

In each room, penetrating the glass wall near the ceiling, is a louvered opening for air exhaust.

• **Expansion joints eliminated**—With the expansion joints in the aluminum frames providing for movement in the exterior walls, it was decided that none would be needed in the structural frame.

However, to account for thermal movement in the uncompleted building before enclosure, temporary sliding connections were introduced in the bays at the third points of the 400 ft long building. Slotted holes in the webs of the connecting members and in the clip and seat angles allowed for dimensional changes due to uneven heating and cooling in various parts of the frame.

As another temporary measure, initial plans called for omission of slabs for the bays at the third points. As the building was enclosed, the omitted bays at the level reached were to have been concreted. But the expense of bridging over these temporary gaps and the higher insurance rate that would be charged the contractor made this method impractical.

Instead, as the slabs for each floor were placed, the third-point panels were the last to be concreted. No difficulties were experienced because of this change in the slab-placing procedure.

• **Heavy loads on floors**—Since the printing industry will provide over $2 million of equipment ranging from the most basic tools to some of the largest and most complex presses in existence, parts of the school were designed for industrial operations.

Floor loadings range from 250 psf in some shops to 60 psf in the classrooms.

Floorbeam spacing is 10 ft in some shops, with deck thickness up to $5\frac{1}{2}$ in. In the shops, top steel reinforcement was continuous in the floor slabs.

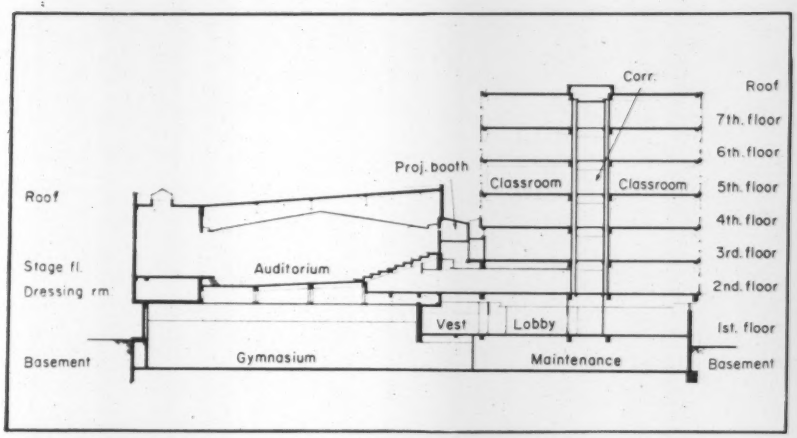
Vibrations of the many presses made it advisable to weld the steel frame. Since the shops are located on the lower floors, all the structural members below the sixth floor are encased in concrete to increase stiffness and mass, to damp vibrations.

Concrete shear walls at one narrow end of the building extend to the second floor, where the heaviest equipment is located, to take horizontal thrust caused by the lateral motion of these presses.

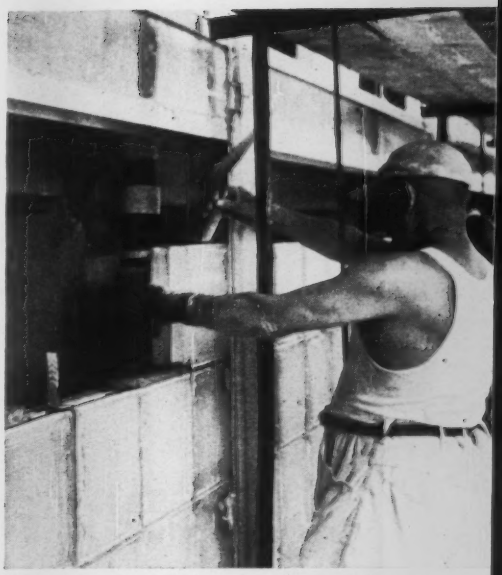
• **Eccentric connections reduced**—The number of eccentric connections, especially between the larger girders and columns, was greatly reduced by running most of the ducts and piping through partitions in the center of the building. These partitions are located on both sides of the central corridor.

Steam return lines run down outside face of the exterior columns. Frames of the glass walls were moved forward several inches from the structural frame to prevent interference with the pipes.

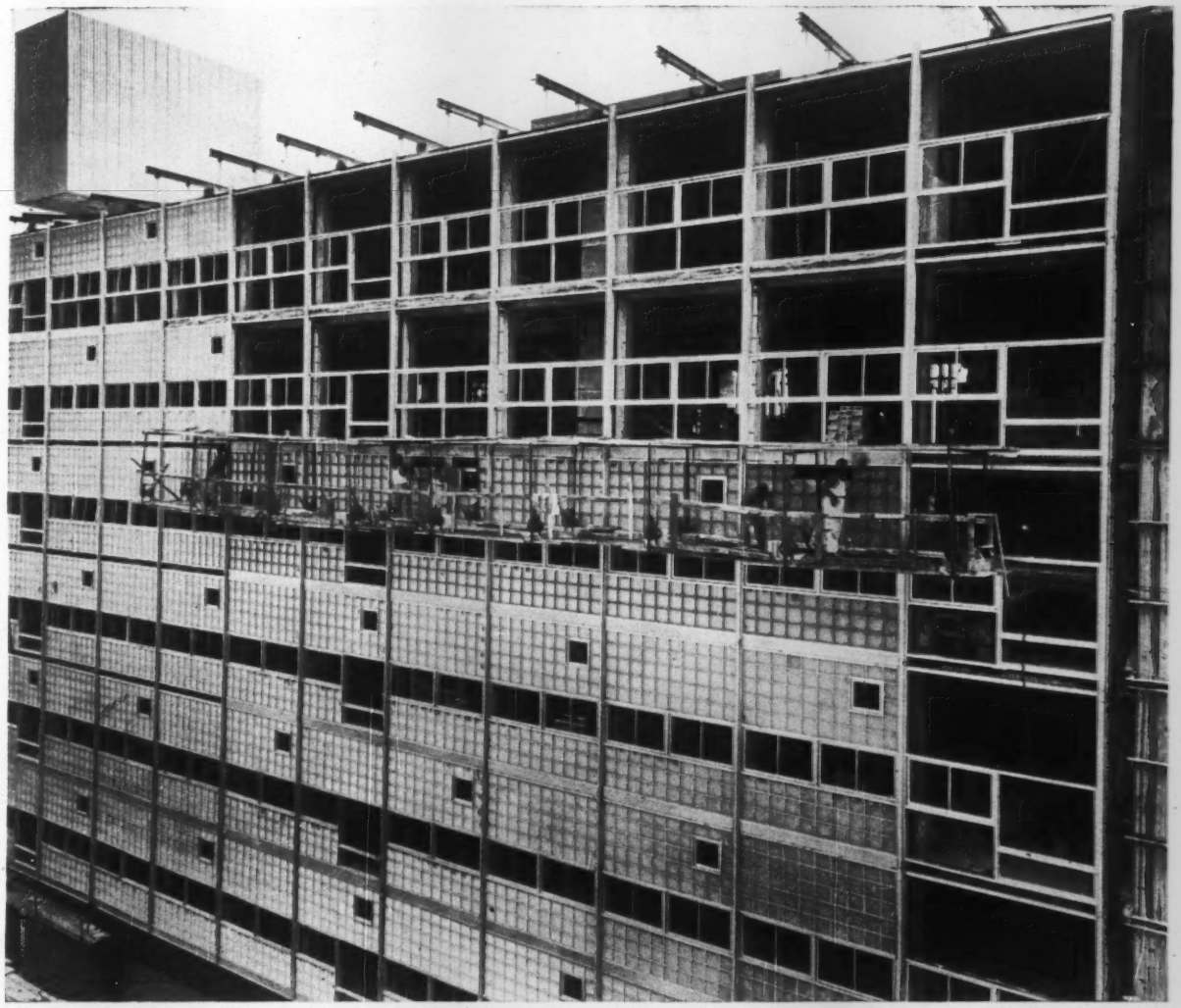
Kelly & Gruzen are architects for the $6\frac{1}{2}$ million school. Severud-Elstad-Krueger are the structural engineers. Caristo Construction Corp. is the general contractor. All are from New York City.



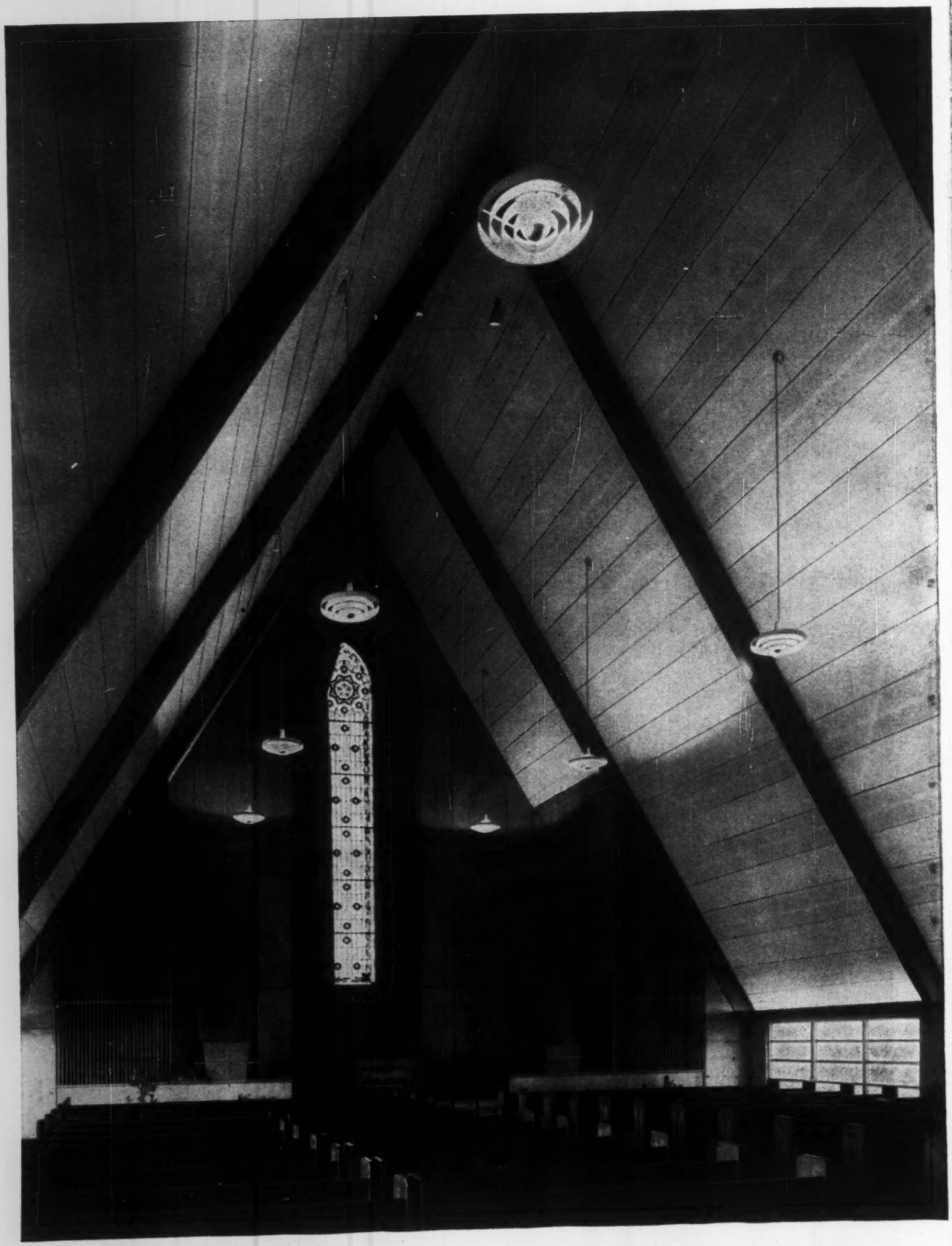
PARTITIONS between corridor walls contain most mechanical services to reduce eccentric connections in the structural frame.

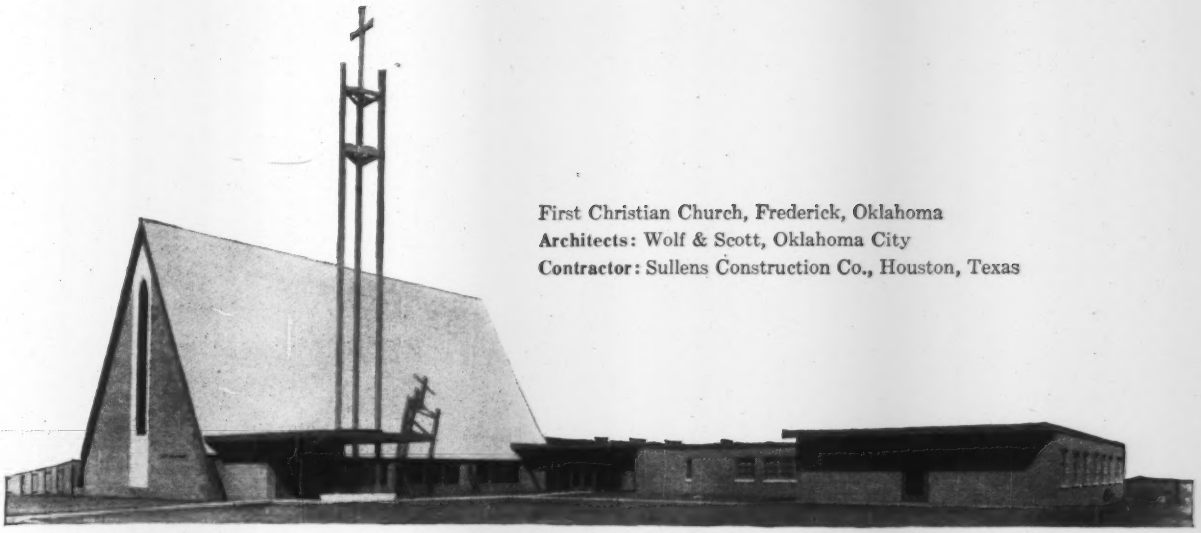


GLASS BLOCK are cushioned by glass fiber matting laid against channel-shaped mullions. Wire fabric reinforces horizontal mortar joints. Steam return lines runs down outside face of column.



EXTERIOR WALLS are composed of 12 in. square glass block, except for clear glass in a 3 ft wide horizontal vision strip on each floor. Small square openings near the ceiling in every second bay are for louvers to exhaust accumulating warm air.





First Christian Church, Frederick, Oklahoma
Architects: Wolf & Scott, Oklahoma City
Contractor: Sullens Construction Co., Houston, Texas

CEILING DOES DOUBLE-DUTY TO STRETCH BUILDING DOLLARS

it's a structural roof . . . it's an acoustical ceiling!

Need aesthetic beauty and muted devotional atmosphere be sacrificed to a dollar sign? Must structural and enduring qualities be compromised for economical construction?

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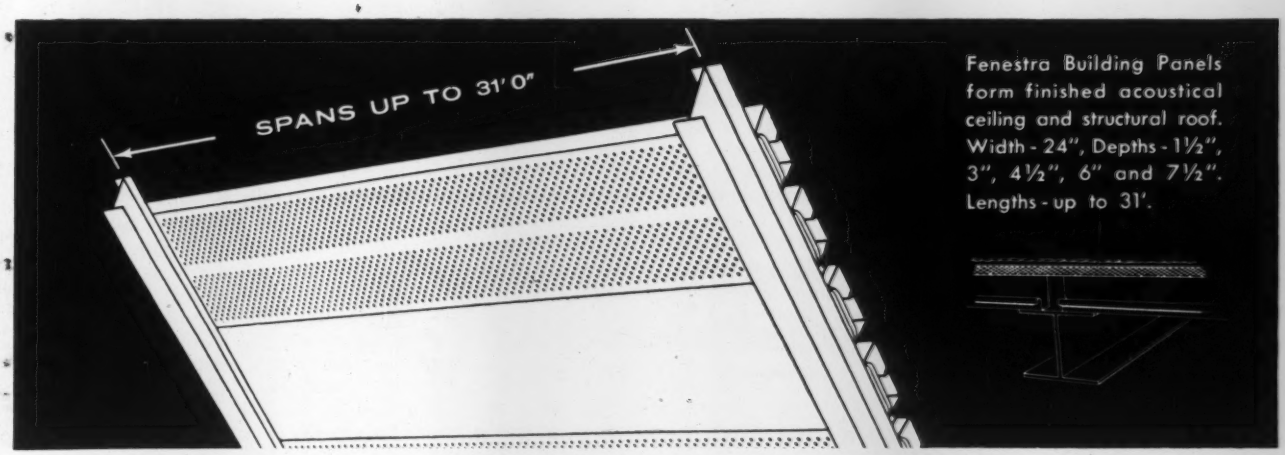
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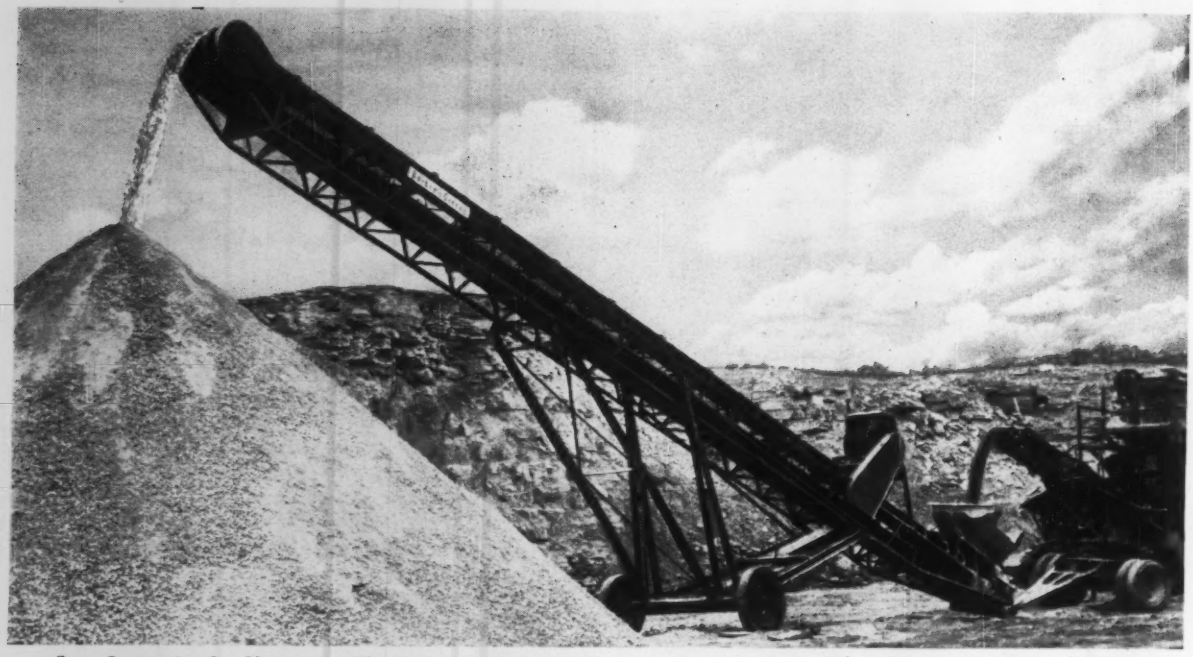

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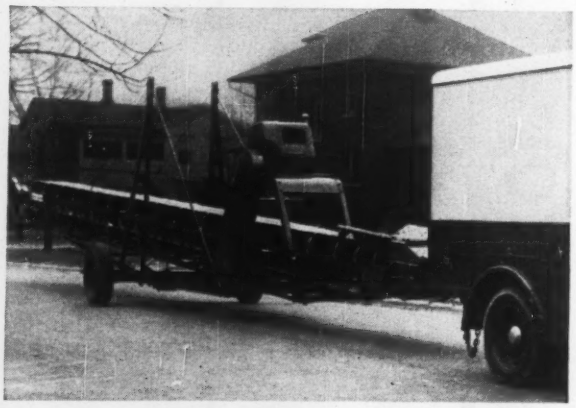

Not just portability, but road-ability is one of the many features that save time and money for the Rowe Construction Co.

Literature shows the many superior features of Barber-Greene portables. Write for your copy.

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CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Lake gets new shoreline, a pile-supported concrete wall . . .

Precast Sections Make Low-Cost Seawall

George D. Whittle
Consulting Engineer
Berkeley, Calif.

Construction of a seawall along the shores of Lake Merritt in the heart of Oakland, Calif., has been facilitated by the use of precast elements. Savings resulted because the wall construction did not have to be dewatered, and casting yard economies could be realized. The only underwater concrete needed was a tremie bond between pile supports and precast cap sections.

The project was necessitated by widening of Oakland's Harrison St. along the west lake shore. This in turn called for building a wall to define the new shore of the lake. In places the new wall will be 100 ft farther into the lake than the old rubble wall built in the early thirties.

Lake Merritt was a tidal slough until a dam was thrown across the channel in 1861. Gates now keep normal lake level between El 2.0 and 3.0 (USC&GS mean sea level datum). The lake receives runoff from 5 sq mi of watershed.

Quarry rock was hauled in during the winter of 1956-57 to make the fill for the widened road and the planted and landscaped area beyond it. The fill, being heavier than the lake mud, settled, displacing the upper layers of mud and compressing the firmer lower strata. The result was that less imported material was required than was originally estimated.

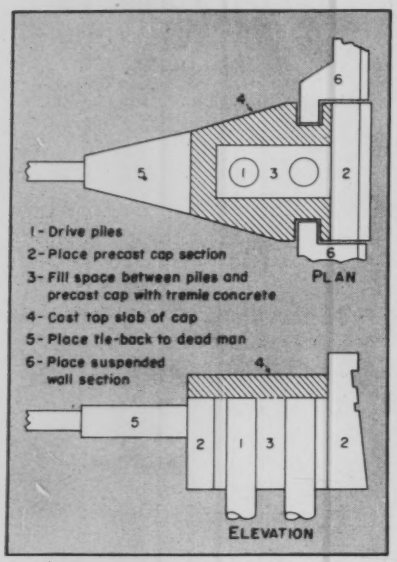
• **Wall design**—Wanted was a low wall along the new shore line, which could be held to line and grade even though the fill itself continued to settle. This called for pile supports driven through the quarry fill and lake mud to firmer bearing below. To save the cost of sheetpiling and cofferdams, the engineers decided to build as much of the wall as possible of precast concrete.

The two precast units are the suspended 5x20 ft vertical wall slabs weighing 11 tons each and the boxes or pile caps that carry all vertical loads to the piles. Two untreated timber piles are used at each bent (spaced on 26 ft centers) and cut off at El 2.5. Pile lengths vary in size from 40 to 55 ft.

The precast four-sided hollow boxes weighing nine tons were lowered around the two piles and temporarily held to position until tremie concrete could be poured into the opening. This, when set and cured, transferred the box weight to the piles. Later, 12 in. top slabs of the boxes were poured in the dry, thus transferring all vertical loads to the piles.

The boxes contain sockets in two sides, into which the tongues of the suspended wall sections were lowered. Each pile cap was anchored to a concrete deadman 40 ft back of the wall by steel ties encased in concrete poured in the dry. Thus, the only concrete poured below water was the tremie concrete in the caps.

The entire alignment of the wall is on easy curves to present a pleasing appearance and to reduce detection of movement of the wall caused by horizontal movement of the fill. At two points in the wall, where the curvature is sharpest, the 20 ft wall units are correspondingly curved; elsewhere they


1- Drive piles
2- Place precast cap section
3- Fill space between piles and precast cap with tremie concrete
4- Cast top slab of cap
5- Place tie-back to dead man
6- Place suspended wall section
PLAN
ELEVATION

CONSTRUCTION STEPS for the lakefront wall. The only underwater concrete needed was for bond between piles and precast pile caps. Cost of precasting wall was estimated at two-thirds that of a cast-in-place structure.

are straight, forming a series of chords along the curve.

The front face of the wall is battered 1 to 8 and there are two horizontal grooves in it to give toe-hold for climbing out of the shallow water along the shore in cases of emergency.

In addition to the 1,500 ft of wall along Harrison St., the contract includes a 1,400 ft wall along the opposite shore of this arm of the lake fronting on the city's Lakeside Park. Here the soil conditions are more favorable. Below the lake mud lies sandy clay, which is stiff enough to permit the drilling of 24 in. dia holes for cast-in-place concrete piles. A shallow quarry fill was placed by the city to get equipment to the site. The piles or columns were carried well into the sandy clay to insure capacity for taking vertical loads and, through bending resistance, the horizontal loads. 60% of each pile was below the top of the clay, resulting in pile lengths varying from 8 to 24 ft.

Here the pile caps were simpler and smaller because of the absence of anchorage and deadmen. Spacing and suspended span details were the same as for the wood pile supported section.

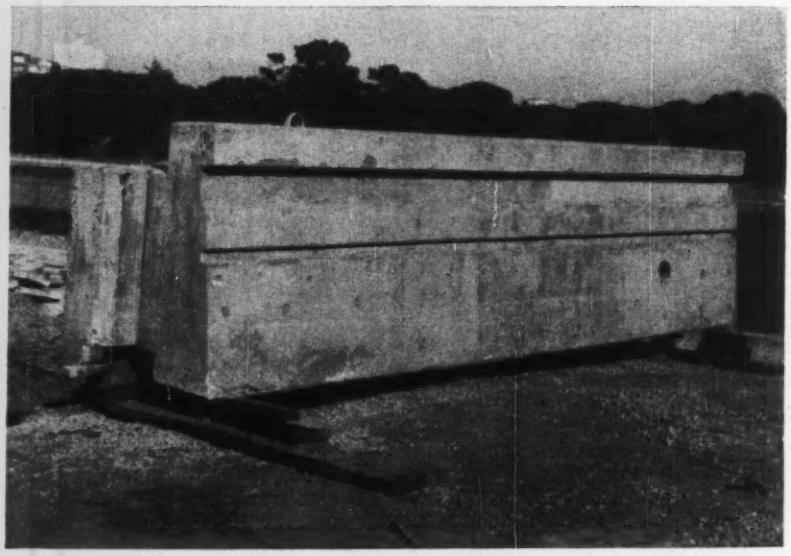
The precast sections were cast in a construction area adjacent to the lake. Where the haul was great, the units were transported from the casting yard to point-of-use by a lumber carrier; there they were placed by a 25 ton truck crane.

Where the wall was near the casting yard, the truck-crane was able to handle the precast pieces directly.

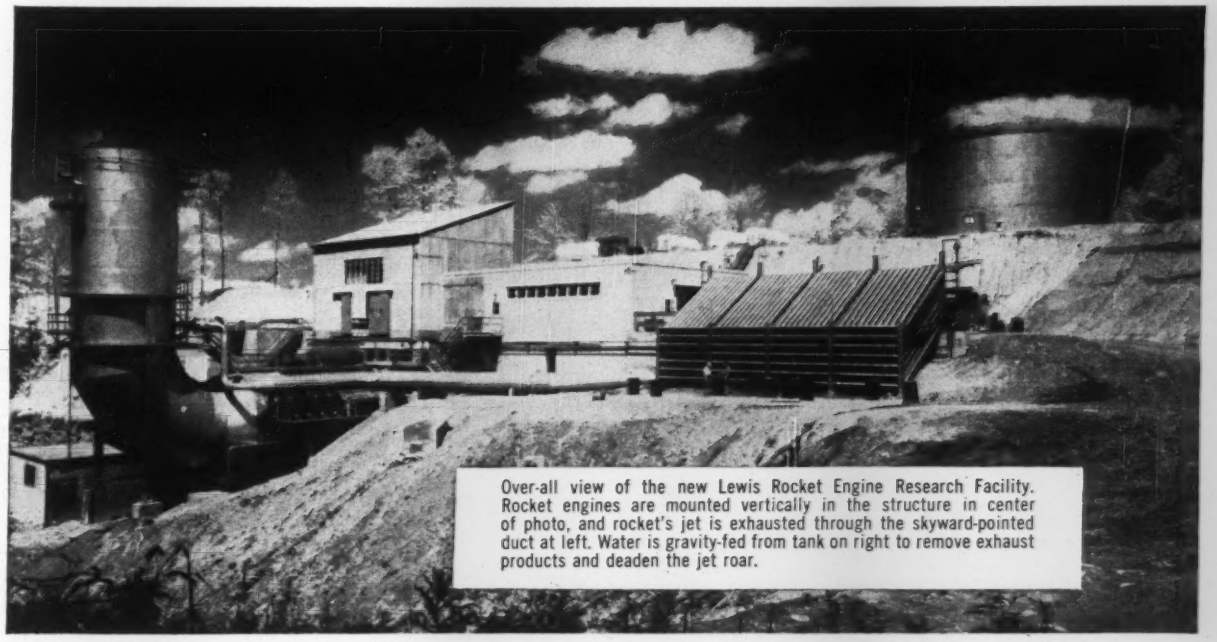
The project was constructed by McClure-Alameda Crane for $154,000. The wall cost totaled about $150,000 or about $52 per lin ft—less than two-thirds of the estimated cost of a cast-in-place wall.

The wall was designed by the author for the City of Oakland, John A. Morin, city engineer. James E. McCarty was supervising engineer.

PRECAST WALL SECTION (11 tons) spans between pile caps set on 26 ft centers.



PRECAST CAP has a groove on each side to receive and seat wall sections.



Over-all view of the new Lewis Rocket Engine Research Facility. Rocket engines are mounted vertically in the structure in center of photo, and rocket's jet is exhausted through the skyward-pointed duct at left. Water is gravity-fed from tank on right to remove exhaust products and deaden the jet roar.

Armco Retaining Wall Holds Back Slope at New Rocket Research Facility

At the new Lewis Rocket Engine Research Facility, a $2.5-million addition to the National Advisory Committee for Aeronautics Laboratory at Cleveland, an Armco Bin-Type Retaining Wall holds back a steep slope to gain ground for needed roadway space.

With the new facility, aeronautical scientists can use practical-size rocket engines in their research on new high-energy rocket propellants.

In the Laboratory, rocket engines are tested by mounting them vertically in a test stand with the jet directed down into a treatment duct. Within this duct, harmful exhaust products are removed and the engine roar silenced. A scrubber-silencer does this by spraying water at the rate of 50,000 gallons a minute. This volume of water is gravity-fed from a 450,000-gallon reservoir.

Because the entire installation is on a steep hillside, level areas had to be created for the road by cutting into the hill. Problem was to hold back the slope to provide room for a wide roadway at the base. How well an Armco Retaining Wall solved the problem can be seen in the photo at the right.

* * *

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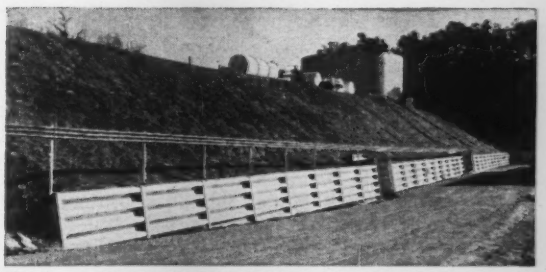

This Armco Retaining Wall, at the base of the slope below the water reservoir, is 331 feet long with a nominal height of 8 feet. The Wall helps contain the slope and gain ground for needed roadway space.

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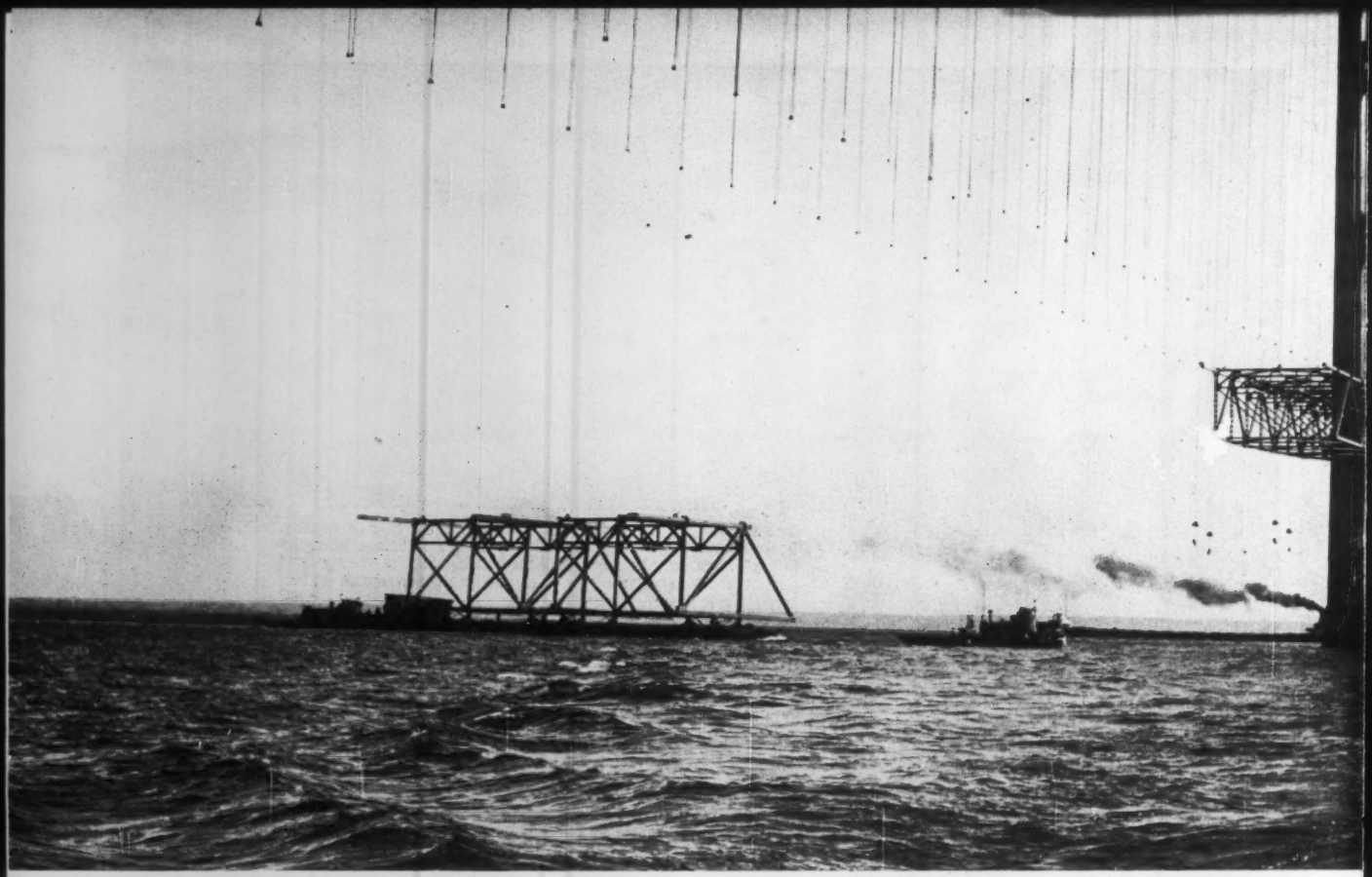


Preassembled sections of stiffening truss, bracing and floor trusses were hoisted into place

Erecting the Superstructure of Mackinac

Bridge engineers of many countries will look to the suspension bridge over the Mackinac Straits for design inspiration and knowledge—particularly with respect to its wind resistant provisions. But if its design is instructive, so too are the construction procedures developed during its erection.

Some of this story already has been recorded in these pages—the substructure work (ENR Jan. 27, 1955, p. 35); spinning the cables in record time (ENR Mar. 28, 1957); and events leading up to opening the bridge to traffic last Nov. 1 (ENR Oct. 31, 1957, p. 24). Erecting the stiffening trusses and their wire rope suspenders, wrapping the 24½ in. main cables, and constructing the bridge deck—accomplishments of the 1957 constructing season—are covered in this article.

The $100 million project will be dedicated next June, and all work will be completed by Sept. 1958. Work remaining to be done at this point includes: completion of the maintenance building, the lighting system and some bridge painting, installation of maintenance elevators in the two main towers; and installation of traffic control lights on the bridge and approaches.

• **Suspender erection**—Although it appeared to be a simple job, erecting 2¼ in. dia wire rope suspenders was a major operation. The suspenders varied in length from a few feet up to 720 ft. The longest ones weighed 7,200 lb each. And all had to be lifted into position along the 8,344 ft of suspended spans by hoists atop the two main towers.

Here's how they did it. From the hoists of two-drum type capable of a 10,000 lb pull, a lead line was carried out along the catwalk, and passed through a snatchblock at the cable band casting which was to receive the suspender. The line was lowered to a barge, anchored directly beneath and loaded with reel stands containing the suspender ropes.

After the end of the ⅝ in. lead line reached the barge it was lowered away to give enough slack to permit making two hitches on the suspender. The upper hitch was made about 20 ft below the "jewel," or socket connection at the end of the suspender; the lower hitch was made just below the mid-point.

With this arrangement, as the upper hitch reached the main cable, the 20 ft length of suspender was looped over the cable band, and the end started back down. Then the second hitch served as the final control for spotting the mid-point of the suspender at the top-center point of the cable band. This placed the two socket ends of the suspender at the same height, ready to receive a stiffening truss section.

As the top hitch started up with the suspender, workmen on the barge "moused" the suspender and lifting line tightly together with hemp rope at about 5 ft intervals. These rope connections, together with metal clamps added at 200 ft intervals, were needed to lift the heavy suspender after the top hitch had reached the main cable and been cut loose. The mousing and the intermediate clamps were removed as they reached the catwalk so that the suspender would continue sliding over the cable band.

• **Stiffening trusses**—On the Mackinac

from barges in . . .

Bridge

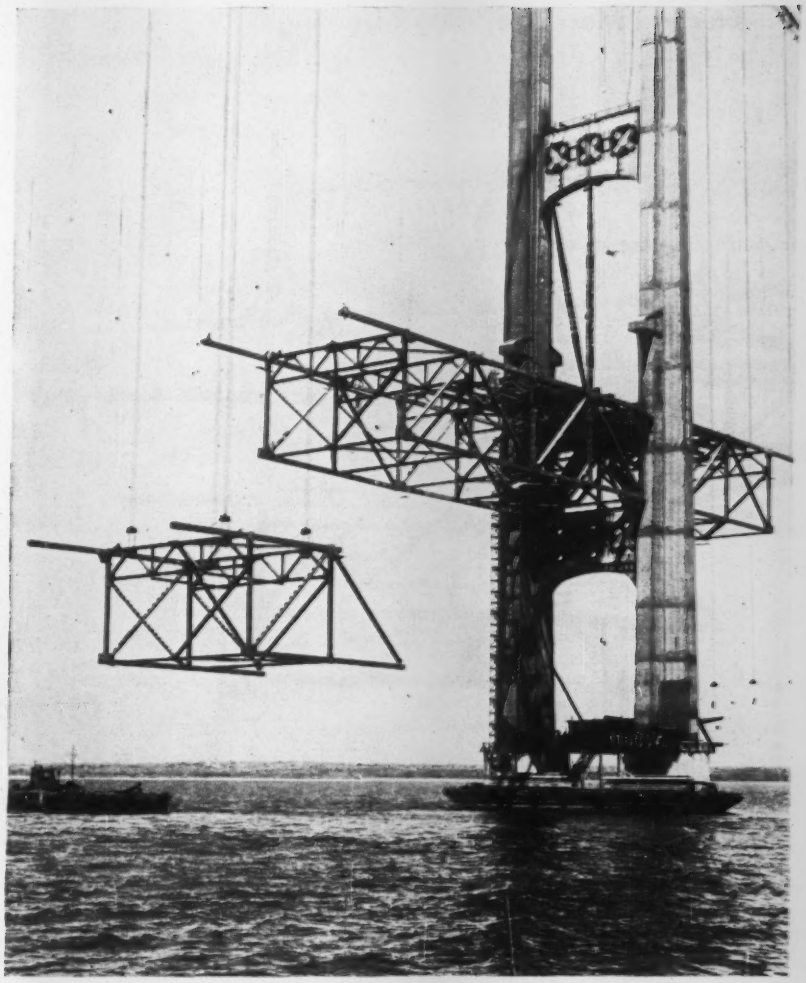
Bridge a number of ordinarily complicated construction operations were simplified by combining time-tested methods on similar bridges, with new procedures tailored to fit the job at hand. One such operation was the erection of the stiffening trusses.

These truss sections were heavy, ranging up to 130 tons for one panel of two trusses with their cross-bracing. They had to be hoisted a maximum of 155 ft above water level. And hoisting operations had to be synchronized to keep the sections level at all times.

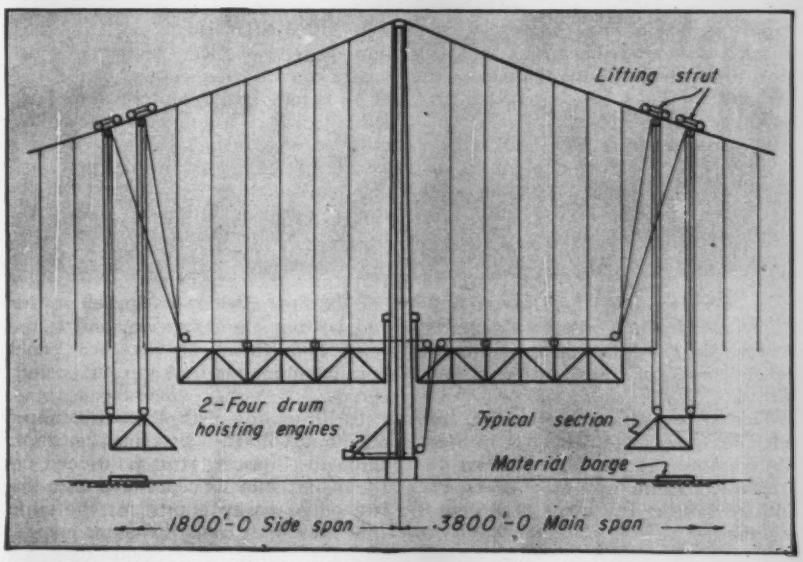
Erection crews worked both ways from the two main towers. Since the suspension bridge is symmetrical about its centerline, erection equipment and methods used for the north half of the bridge were duplicated simultaneously for the other half.

In addition to the 3,800 ft central span, the suspension bridge is made of two 1,800 ft side spans and two 472 ft backstay spans.

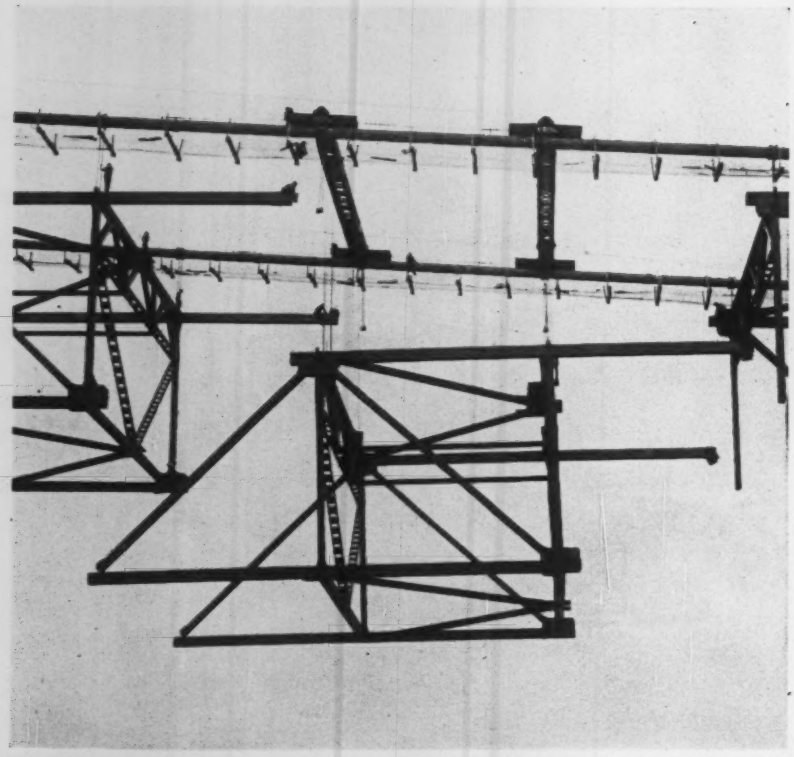
• **Lifting struts**—Stiffening truss erection was accomplished by wheel mounted lifting struts operating on top of the



TRUSS SECTIONS were lifted by rigging supported on the bridge cables.



RIGGING SCHEME called for hoisting engines on the towers powering wire ropes passing over sheaves on lifting struts straddling the bridge cables and attached to four pickup points at the top of the truss assembly.



NEARING DESTINATION, truss section suspended from lifting struts atop bridge cables is fitted between already erected framing at midspan.

LIFTING STRUTS rode on the bridge cables on wheels with plywood treads.

main cables, two struts each way from each of the main towers. The framework of each lifting strut, spanning 68 ft c-c of the main cables, was made up of a 30 ft boom section of derrick, welded at each end to a 19 ft extension.

The wheels of the lifting struts were made up of 8 in. steel pipe cores surrounded by several thicknesses of $\frac{5}{8}$ in. laminated plywood, with the outer surfaces turned on a lathe to match the periphery of the 24½ in. dia cables.

The lifting struts had four sets of lifting falls, each reeved with a nine part line of $\frac{3}{4}$ in. wire rope. A four-point pickup was needed to hoist the truss sections into place. The sheaves of the upper blocks were built into the lifting struts. The lower blocks had a pair of 1¼ in. wire rope slings that hooked onto a pin-and-channel assembly inserted beneath the top gusset plates at the first panel points of the transverse floor trusses.

This pickup-arrangement gave considerable freedom to maneuver in hoisting the truss sections into position for attachment to the wire rope suspenders, and for bolting the main truss chords together.

The 89 sections of stiffening trusses were lifted from barges into position by two four-drum hoists at each main tower. Each of the 16 drums had 5,200 ft of $\frac{3}{4}$ in. wire rope, and a lead line pull of 20,000 lb.

• **Synchronized hoisting**—The hoisting engines were synchronized, by telephoned signals from the erection point, to keep the truss sections level as they were lifted. To check on this, two jumbo-sized job-made levels were attached to each truss section. Consisting of 10 ft long boxes painted white, containing an 8 in. ball painted black, they operated, in principle, like a spirit level. One level was located on the top chord of a truss member the other on one of the cross trusses, thus permitting leveling in four directions.

The typical truss sections contained two panels each of top chords, diagonals and bottom chords; one panel of top and bottom chord bracing; and transverse floor-trusses at the two panel points, common to both top and bottom chords.

In lifting one of these truss sections, one hoist, with two of its lines operating through a hoisting strut positioned on the main cables above, hooked onto the two outer pickup points. At the same time two lines from the other engine, passed through the block and falls of a second lifting strut and hooked onto the inner pickup points.

The lifting operations were controlled by a signalman and the two hoisting engineers. From his vantage point on the outer end of previously erected trusses, the signalman looked directly down on the truss section being raised. If it got out of level, he could easily spot it by watching the two job-made levels.

To pick up a section of truss from a barge and hoist it into position, one engineman pulled in both of his frictions at the same time. The other engineman did the same. Thus, at a signal from the signalman, they started together—then kept synchronized as the trusses were raised.

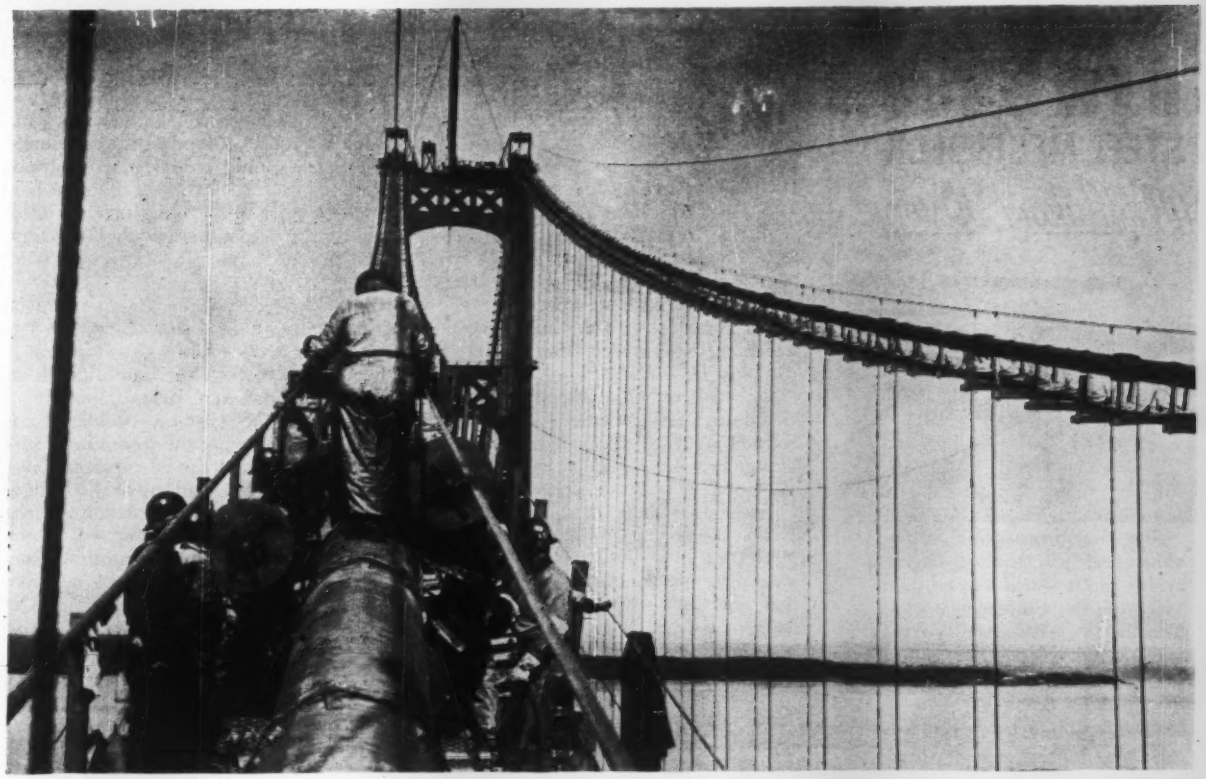
• **Cable wrapping**—The 24½ in. dia main cables were wrapped with four 3-bobbin machines, working simultaneously to get the job done in time for opening the bridge to traffic last Nov. 1.

Two machines started at the quarter-points of the 3,800 ft main suspended span and two started at the mid-point of one of the adjoining 1,800 ft side spans. All four machines worked uphill toward the main tower. This was repeated at the other main tower, with the machines being serviced by wire rope high-lines strung above the cables. Bobbins and other cable-wrapping materials were hoisted to the top of the towers and carried down on the high lines to the wrapping machines.

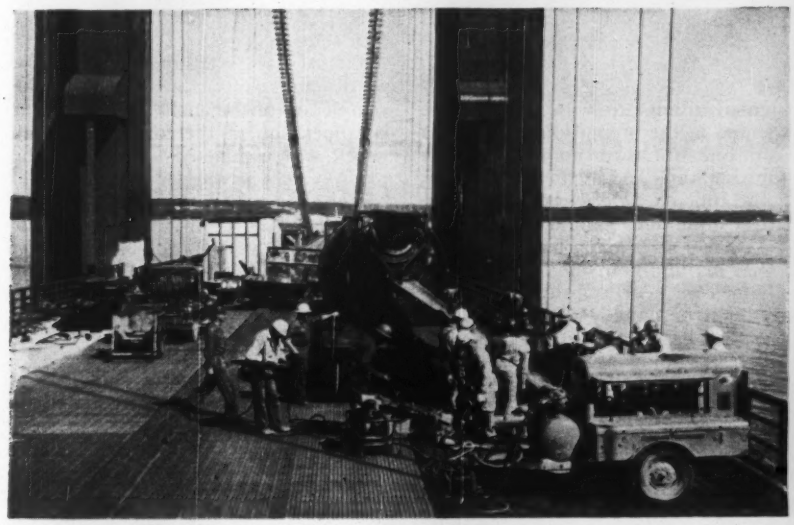
For the remainder of the cable wrapping, which always progressed upgrade from the anchorages, cable-bents, or center of main span, the machines were serviced by long-boom cranes operating on the roadway floor steel.

The cables were wrapped with No. 9 soft annealed galvanized wire under a tension of 400 psi. They were coated with a heavy layer of red-lead paste just ahead of the wrapping machines.

Each machine laid three wires simultaneously as it moved along—riding on



CABLE WRAPPING crews used three-bobbin machines to wrap four panels (160 ft) of cable per 9½ hour shift.



FOUR-LANE ROADWAY on suspended spans has inner lanes of open steel grid and outer lanes of lightweight concrete-filled grid with bituminous surfacing.

APPROACH SPANS are surfaced from curb to curb (48 ft) with asphaltic concrete.

the cable and prevented from torquing by two permanent wire rope hand lines mounted just above the cables. A six-man crew wrapped an average of four panels, about 160 ft of cable in a 9½ hr shift.

• **Roadway deck**—The deck of the four-lane bridge consists of two 23-ft roadways separated by a two-ft-wide mountable median and a pair of three-foot sidewalks to give a total width of 54 ft between handrails.

For the 8,344 ft of suspended spans, the two 11 ft inner lanes and the median are 5 in. open steel grid—a design adopted to improve the structure's aerodynamic stability. The two 12 ft outer lanes are 4½-in. steel grid filled with lightweight concrete and topped with bituminous concrete.

The steel grid floor is carried on 12 in. transverse beams, 5 ft c-c, in turn supported by five lines of 30 in. silicon steel stringers spanning 39 ft between the floor trusses. The transverse floor trusses span between the stiffening trusses spaced 68 ft c-c.

The floor steel was barged out to one of the main piers, hoisted to roadway level, and transported by straddle truck to its point of erection. It was set in place by truck crane.

★ ★ ★ ★ ★

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The first installation of an open steel grid flooring on any bridge in the world was made in 1932, on the University Bridge, Seattle, Washington, by the Irving Subway Grating Co. The previous solid pavement on the bridge had been plagued by frequent repairs and accidents.

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. . . Completing the Mackinac Bridge

Erection of floor steel progressed both ways from the tower piers. The steel grid was laid and tack-welded close behind the erection of the stringers and floorbeams. This permitted the truck crane to use previously erected steel grid flooring as a working platform.

Field connections of floorbeams, stringers and bracing were made with high strength bolts. All bolts were tightened, inspected and approved before laying the steel grid flooring since they were inaccessible after the flooring was in place.

The concrete-filled steel grid for the two outer roadway lanes was completely welded as the erection crews moved along, to avoid any delay in placing the concrete. It took an estimated 12 tons of welding rod to weld the steel grid to its supporting floorbeams.

• **Lightweight concrete**—The 4¼ in. steel grid flooring for the outer 12-ft roadway lanes was filled with lightweight portland cement concrete and surfaced with bituminous concrete. The lightweight concrete was delivered by transit-mix truck, deposited in place and vibrated by both internal vibrators and a vibrating screed.

A typical mix for a cubic yard of concrete contained 6½ bags of cement; 450 lb of lightweight expanded shale coarse aggregate from ⅜ in. to ¾ in.; 1,570 lb of lightweight fine aggregate passing a ⅜ in. mesh screen; and 29 gal of water. A patented admixture with tannin base was used in the proportion of ¼ lb to a bag of cement for workability, reduction of mixing water and high early strength.

The concrete, which was required to have a minimum compressive strength of 3,000 psi at 28 days, had a slump of 2 to 3 in., and contained about 6.5% entrained air. Air was supplied to the mix by air entraining cement and was controlled by the use of slight amounts of air entraining agent or of air detraining agent as required.

Conventional concrete aggregates were produced in commercial crushing and screening plants and trucked about 15 miles to the batching and mixing plants at the north end of the bridge. They were shipped by rail for the south end. Lightweight aggregates were shipped in by rail from lower Michigan.

• **Bituminous surface**—The asphaltic concrete surfacing on the outer lanes of the suspension spans was laid to a compacted thickness of ¾ in. at the edges and 1¾ in. at the centerline of the lane. All four lanes of the approach spans are 1½ in. asphaltic concrete surfacing on a 6 in. reinforced concrete slab.

A total of 1,800 tons of asphaltic concrete surfacing was used on the suspension spans, and 5,000 tons on the approach spans of the 17,913 ft bridge.

The surfacing material on the approach spans was made with minus ⅝ in. stone and an 85-100 penetration asphalt. The average mix included 56% stone, 32% sand, 5.5% bitumen and the balance mineral filler. On the suspended spans, the same mix was used except that specifications called for minus ⅜ in. stone.

The asphaltic concrete was mixed in a plant about three miles south of the bridge, and transported to the job in a fleet of ten trucks. Maximum length of haul was about eight miles.

One of the trickiest problems encountered in laying the bituminous surfacing occurred at the 80 expansion and fixed joints in the roadway of the bridge. Since the tops of the expansion devices and fixed joints were designed to set flush with the finished bituminous surface, the paver had to crawl up over these 1½ in. and 1¾ in. projections as it laid the hot asphalt. To solve this problem, the contractor used a track type paver with oscillating rollers.

Before the paver crossed the joints they were covered with masking tape to prevent the asphalt from falling through. The tape was scraped off before rolling the asphaltic concrete to its final crown and finish. At first, the paver laid the hot asphalt at an average rate of 22 fpm, which was later increased to 32 fpm.

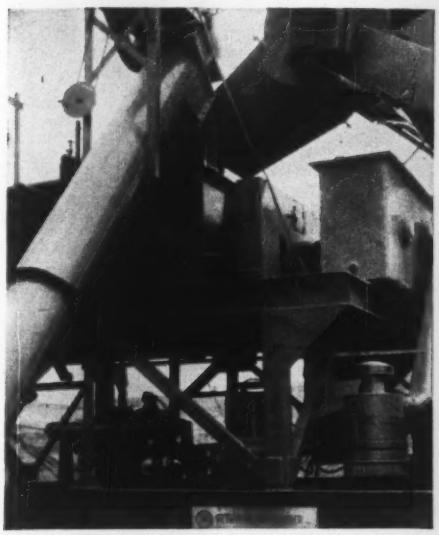
Precast slabs were employed by the substructure contractor to speed up the completion of the anchorage decks—the last operation of the foundation work which was completed just before the roadway deck paving.

The slabs were 3 ft 4 in. wide by 1.5 ft thick and 29 ft 4 in. long, and heavily reinforced to span 28 ft over the center wells of the anchorages. They were covered with a 1½ in. bituminous concrete wearing surface.

• **Engineers and contractors**—J. W. Kinney is resident engineer on construction for D. B. Steinman, consulting engineer and designer of the bridge. A. B. Drilling is project superintendent for the American Bridge Division of U. S. Steel Corp., superstructure contractors. John Kelly, Robert Anderson and John Adkins are assistant superintendents; and A. J. Hubbard is chief field engineer.

A contract for the portland cement and asphaltic concrete deck construction was held by Louis Garavoglia and Johnson-Greene Co.; with the bituminous paving being subcontracted by the Thornton Construction Co. Merritt-Chapman & Scott Corp. were contractors for the substructure. Prentiss M. Brown is chairman of the Michigan Bridge Authority. L. A. Rubin is executive secretary, and C. E. Haltenhoff is general manager.

to provide accurate proportioning and control of base materials in large capacity operations



To provide . . . in large capacity operations—the more accurate proportioning and control of base materials which so many state highway departments are requiring, H & B engineers have developed two new Stabilizers, to provide capacity up to 400 cu. yds. per hour.

Both of these Stabilizers are unit type plants, with individual units operated by electric drives. The feeder, mixer, and aggregate conveyor are wheel mounted, to permit operation in running position without jacking up or cribbing. The units include:

FEEDER: equipped to proportion two sizes of aggregate onto belt.

AGGREGATE CONVEYOR: belt type, carrying aggregate from feeder to mixer.

MIXER: Twin shaft, continuous pugmill type, driven by Diesel power unit, and equipped for introducing water into mix.

CEMENT CONVEYOR: electrically driven, with variable speed drive, permitting accurate control of proportioning.

ELECTRIC DRIVES: permitting the feeding of aggregate, cement and water to be started and stopped simultaneously with one push button.

Complete information on either of these Stabilizers will be furnished on request.

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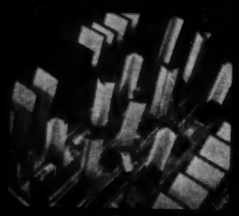
7 TOUGH TESTS PROVE SUPERCOAT PERFORMANCE

1. SOAK TEST simulates field condition of windows standing overnight in a pool of water before installation.
2. SALT SPRAY TEST parallels coastal area atmospheric conditions.
3. WEATHEROMETER TEST duplicates the field condition of exposure to strong sunlight.
4. ABRASION TEST simulates abrasive materials rubbing against frames during installation, and abrasives windblown after installation.
5. HUMIDITY TEST parallels field conditions of humidity inside and outside.
6. ALKALI TEST duplicates field conditions of washing windows with ammonia, rain dripping off mortar, plaster, etc.
7. MAR PROOFNESS TEST simulates field condition of sliding frames across one another in handling.

SUPERCOAT PASSED THEM ALL!



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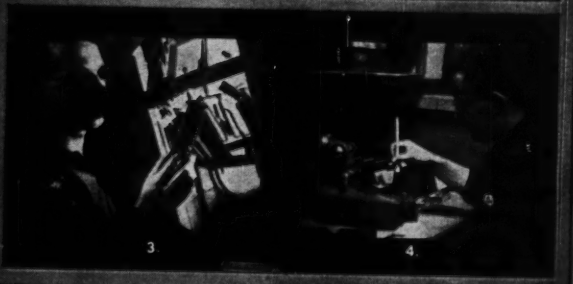
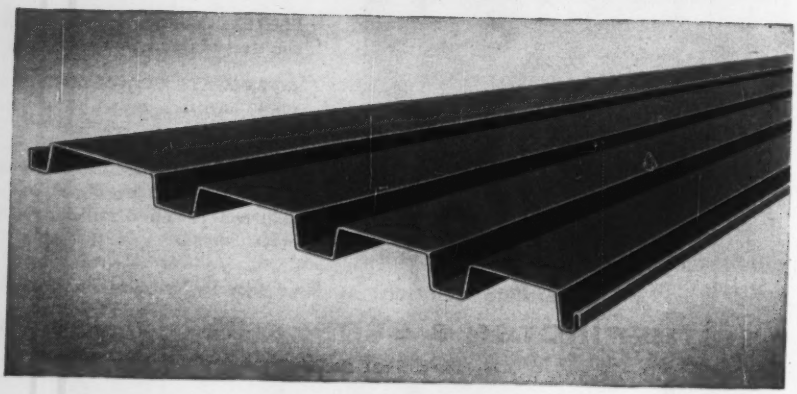


3. 4.

6. 7.

NOW! Truscon Ferrobored® Steel Roofdeck is a full two feet wide. New, wider Ferrobord available in lengths up to 32 feet, 6 inches. It roofs large areas quickly. Straight lay means that several crews can roof without delay. All work is done from above—Ferrobord is quickly welded to top chords of joists or purlins. It is light, strong. Fire-resistant. Available now. Send coupons for specs.



NEW SUPERCOAT FINISH

Install without painting! Stave off maintenance painting!

Now, you can have the solid strength of steel windows and avoid painting costs, too. New Truscon Supercoat Process is factory-applied to eliminate all field painting . . . both at installation and during the years.

This outstanding Truscon development has been thoroughly laboratory-tested—for weather, atmosphere, time, and abuse. It has successfully met each challenge. Read tests at left.

Supercoat is a two-coat baked enamel that originally was developed for water-using appliances in which corrosion must be avoided. This superbly smooth, hard and glossy finish has been improved by the research laboratories of Republic Steel to further withstand exterior exposure.

As a result of this development, there is no need to sacrifice strength and solidity in window sections simply to avoid painting. Supercoat Process can be furnished now on specification in factory shipment on all Truscon Steel Windows for commercial, institutional, and industrial construction. Standard color is a light grey. Six more colors on special order. Send coupon for free Supercoat sample.

REPUBLIC STEEL LOCKERS now Bonderized to lock paint on, lock rust out! Bonderized steel surfaces take and hold a firm grip on enamel. If chipping or scratches occur, underpaint corrosion is confined to a small area. Republic Steel Lockers look better, last longer, even when subject to rough handling in schools, industrial plants. Yet, they cost no more. Send coupon for facts.

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- ☐ Truscon Ferrobord Roofdeck
- ☐ Republic Steel Kitchens
- ☐ Republic Steel Lockers

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DRAGLINE
BUCKETS

FORMER BUREAU OF RECLAMATION ENGINEERS C. L. Killgore (right) and E. R. Dexter are president and vice president, respectively of Engineering Consultants, Inc.

New Design Firm Gets $100 Million Job

Engineering Consultants, Inc., of Denver, a new consulting engineering firm, has received a contract to design and supervise construction of Thailand's $100 million Yanhee hydroelectric project, in conjunction with Sverdrup & Parcel International, Inc., St. Louis.

The Denver firm is composed of former Bureau of Reclamation engineers. Its president is C. L. Killgore, former assistant chief design engineer for electrical and mechanical work in the bureau; vice president is E. R. Dexter, former head of Reclamation's concrete dams section.

The consulting contracts, given out by the Royal Irrigation Department of Thailand, have been approved by the International Bank for Reconstruction and Development, which loaned Thailand $66 million toward the Yanhee project.

Principal features of the project are Bhumiphol concrete arch dam, to be 505 ft. high, and a 560,000 kw power plant. The project will control flow of the Ping River for power, flood and irrigation purposes. First construction bids are to be opened in Bangkok in April.

Other principal members of Engineering Consultants, Inc., are W. H. Hinch, P. A. Danielson, N. G. Noonan, F. A. Houck and Jack Kraning. The review board for the project is made up of Raymond E. Davis, Edward B. Burwell, Jr., and C. E. Blee, all of the U. S., and Fredrik Vogt of Norway and Henri Gicot of Switzerland.

At a recent design conference in Denver, Gail Hathaway represented the World Bank and Leif J. Sverdrup headed his firm's delegation.

Robinson Named President Of Clay Pipe Association

G. A. Robinson has been elected president of the National Clay Pipe Manufacturers, Inc. Mr. Robinson had been vice president in charge of activities and government relations in Washington, D. C., for the clay pipe association for the last six years.

He replaces D. M. Strickland, who retired this year. Mr. Strickland will serve as a vice president and consultant to the Board of Directors.

Before joining the clay pipe association in 1951, Mr. Robinson directed the activities of G. A. Robinson Associates, a group of sales engineers representing electrical and mechanical equipment manufacturers, and was with Stone and Webster Engineering Corp. during construction of the Oak Ridge atomic facilities. A graduate mechanical and electrical engineer, he received his degree from the Nova Scotia Technical College.

Sutter Gets Bonneville Power Procurement Post

Harvey M. Sutter, who has been chief of the procurements and contracts branch of the Bureau of Reclamation in Washington, D. C., has transferred to the Bonneville Power Administration as assistant to Administrator William A. Pearl.

He will be in charge of procurement, contract administration and supply procedures and also will serve as staff liaison officer for claims by and against the government relating to contract work.

Steffensen Is Named to High New York Post

Sigvald W. Steffensen has been named Consulting Engineer for Queens Borough, New York City. As deputy director of the New York's Division of Sewage Disposal, he has been in charge of the design of intercepting sewers, pumping stations, treatment plants, incinerators and sanitation loading stations, directing and supervising the work of 125 engineers and architects.

With 29 years experience, Mr. Steffensen has been chief of design on pollution control since 1954, with responsibility of preparing plans for the city's $280 million pollution elimination program and the $90 million incinerator and loading station program for the Department of Sanitation. He holds civil engineering degrees from Brooklyn Polytechnic Institute and New York University.

Montana Names Heidel Deputy State Engineer

C. Sumner Heidel has been appointed deputy engineer for the State of Montana. A veteran water expert in Montana, he will work on the state's water resources problems.

Mr. Heidel went to Montana in 1910 after receiving a mining degree from the University of Minnesota. He was state engineer for Montana from 1920 to 1927, when he joined the U. S. Geological Survey.

With the Interior Dept, Mr. Heidel acted as field representative for the chief of the water resource division, concentrating on U. S.-Canada water relations.

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PAGE (Chain Link) **FENCE**

offers the Widest Choice

You can choose from

—8 Fence Styles
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Galvanized Steel • Woven of time-proved open-hearth steel wire, hot-dipped galvanized after weaving to assure long service.

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He played a prominent role in apportionment of the water of the Milk and St. Mary Rivers between the two countries and has served on two different Columbia River boards and commissions.

Captain Peter Corradi

Captain Corradi Named Deputy Chief of BuDocks

Capt. Peter Corradi reported as Deputy Chief of the Bureau of Yards & Docks on February 1, relieving Rear Adm. Albert J. Fay who becomes Fifth Naval District public works officer in Norfolk. The change was occasioned by the recent naming of Rear Adm. E. J. Peltier as BuDocks chief (ENR Nov. 14, 1957, p. 28).

Captain Corradi, 47, comes to the Washington post from Charleston, S. C., where he was Sixth Naval District public works officer. He has been on active duty in the Civil Engineer Corps since 1941 and transferred to regular status in 1946. The deputy chief's post carries with it the rank of rear admiral.

Leif Sverdrup Cited By Secretary of Army

Lief J. Sverdrup, partner of Sverdrup & Parcel, Inc., St. Louis, has been given a citation by Secretary of the Army Wilbur Brucker in honor of his retirement from the active Army reserve.

As a major general, Mr. Sverdrup served more than 10 years as commanding general of the 102nd Division, as a member of the Reserve Forces Policy Board of the Department of Defense, and as chairman of the general staff committee on National Guard policy of the Army.

Careers

Business

Francis L. Winslow has been elected president of the Plainfield-Union Water Co., Plainfield, N. J. He was secretary-treasurer of the company for 30 years.

Marvin T. Rowland has become project manager for Ralph M. Parsons Co. in Iraq, replacing **James G. Holwerda.**

Richard S. Harding, civil engineer, has opened a San Francisco office for the practice of soil mechanics and foundation engineering. He was formerly with Merwin-Harding, Inc. (drilling and test boring specialists) and Dames & Moore.

David F. Shaw has been appointed vice president of Kaiser Engineers, in Oakland, Calif.

A. N. Laird will become a partner in the firm of Plumb, Tuckett & Pikarsky, consulting engineers and architects. He will be in charge of the Michigan office of the firm.

Daniel M. Pierce has been appointed general manager of Seaboard Structural Steel at Wilmington. He will give special attention to the current barge program and industrial work. **Robert G. Dick** also has been appointed sales representative.

C. L. Pien has been named chief of research and development for the civil engineering department of A. M. Kinney, Inc., Cincinnati. He was formerly with Victor Gruen & Associates of Detroit.

Retirements

E. E. Mashburn, head of the Construction Division of the Arkansas Highway Department, retired at the end of 1957. A department employee since 1932, he is a graduate of the University of Arkansas.

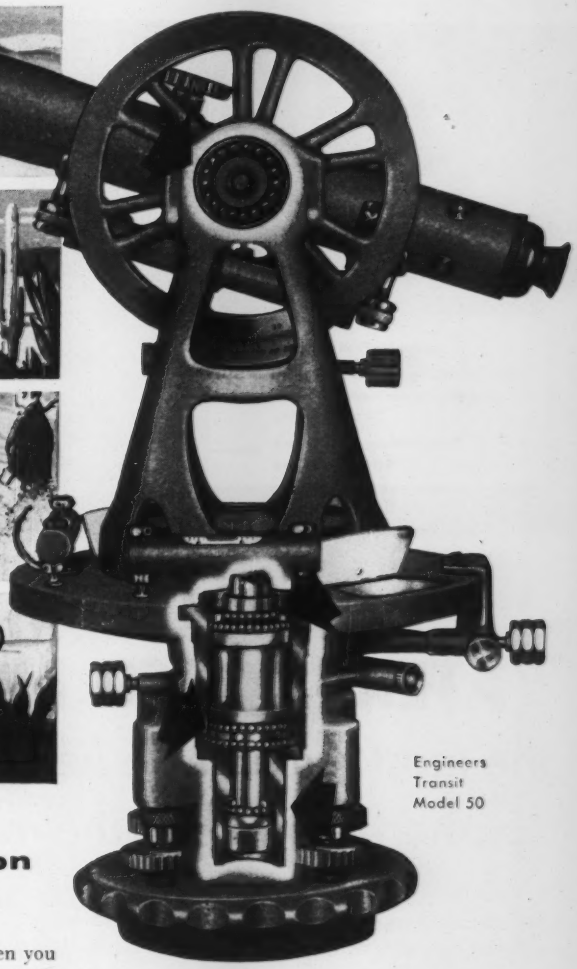
Associations

Joseph I. Perrey, chief engineer of the Indiana Flood Control and Water Resources Commission, has been elected president of the Indiana Section of American Society of Civil Engineers.

Clifford P. Hougland has been appointed field representative for the American Concrete Pipe Association, with headquarters in the Washington, D. C., office. He was formerly with the Iowa Highway Commission and Bethlehem Steel Corp., as an engineer on highway and steel construction projects.

The four officers who headed the Structural Clay Products Research Foundation during the past year have been re-elected. They are **Roy A. Shipley,** chairman; **William A. Crossan,** vice chairman; **Harry C. Plummer,** secretary; **A. C. Frisk,** treasurer.

John L. Morley, head of Millsboro Construction Co., Mansfield, Ohio, has



Engineers
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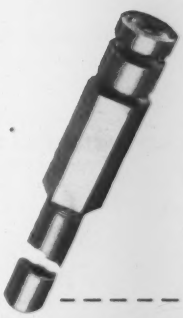
No Weather Worries with Brunson Ball Bearing Construction!

You never have to worry about operating conditions when you use a Brunson instrument. Revolutionary ball bearing construction virtually eliminates the problems of dust, moisture, and extreme temperatures. Your Brunson instrument stays accurate where others fail!

Located in the spindle and telescope axis, Brunson ball bearings are permanently lubricated by an all-temperature lubricant and sealed against moisture and dust. Preloaded and accurate to 5-millionths of an inch, these ball bearings provide highest possible instrument accuracy. Because the bearings are always fully protected and free rolling, wear is practically eliminated. Settings are more precise, frequent cleaning and lubricating are unnecessary. Routine repair and maintenance are reduced to a level never before thought possible.

You pay no more for Brunson's ball bearing construction. You assure accurate, trouble-free instrument performance anywhere . . . anytime! Mail coupon for free literature offer.



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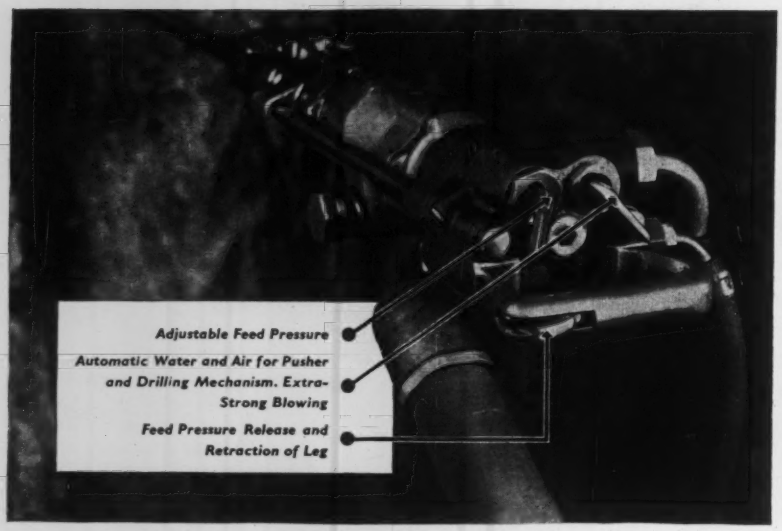
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Automatic Water and Air for Pusher and Drilling Mechanism. Extra-Strong Blowing
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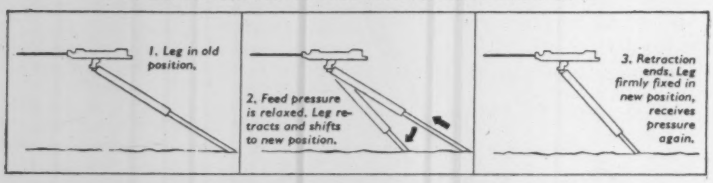
the most remarkable heavy-duty pusher-leg drill on the market

The Lion is the only rock drill with retractable leg operated from the backhead, which means quicker repositioning. It is also one of the very few drills on the market with all the operating valves controlled by one hand. Both these features make for great savings in time and manpower: in addition, the Lion has an especially high drilling speed compared with other drills in the same class.

THE RIGHT STEELS FOR THE LION

With the Lion choose Sandvik Coromant tungsten-carbide-tipped integral steels—the most widely used in the world—or Sandvik Coromant detachable bits and extension steel equipment.

PUSHER LEG ADVANCES WITH DRILL IN ACTION


1. Leg in old position.
2. Feed pressure is relaxed. Leg retracts and shifts to new position.
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ATLAS COPCO MEXICANA S.A., Apartado Postal 56, Torreon, Coahuila. Phone 39-07

been elected president of the Ohio Home Builders Association. He succeeds **Paul Kessler,** Celina.

Frank J. Schantz has been elected president of the Rochester, N. Y., Home Builders Association.

Edward Northway, of Hutchinson Homes Co., has been named president of the Home Builders Association of Metropolitan Denver. **Franklin Burns, Daniel K. Kellogg** and **M. C. Bogue, Jr.,** were elected national directors.

R. L. Pine has been elected president of the Montgomery County Builders Association, Ohio, formerly known as the Home Builders Association of Metropolitan Dayton.

Howard F. Eckerlin is elected president of the newly organized New York State Association of Consulting Engineers, Inc. **J. N. DeSerio** is the new vice president, and **F. E. Kulas** is secretary-treasurer.

Honors

N. D. Teters, who was the civilian in charge of construction on Wake Island when it was attacked by the Japanese in December, 1941, has been awarded the degree of Chevalier in the French Legion of Honor. Mr. Teters, now a vice president in charge of building airbases in Morocco for Morrison-Knudsen International, received the award at Casablanca.

Reginald J. S. Pigott, Pittsburgh consulting engineer, was one of three scientists to receive Elliott Cresson Medals from Philadelphia's Franklin Institute at its recent annual awards meeting. He was honored for many contributions to science.

Public Works

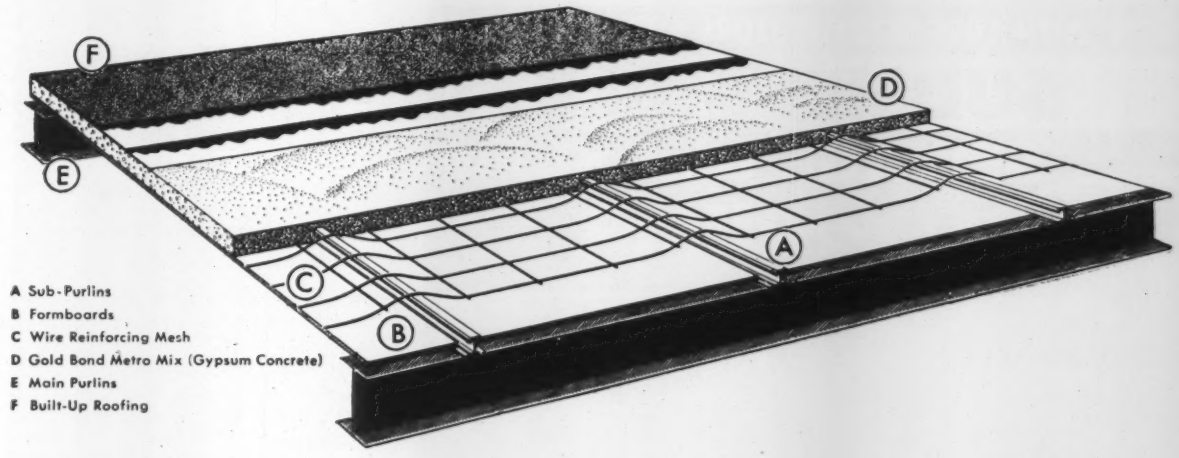
Don H. Huff is new chairman of the Interior Department's Pacific Northwest Field Committee with headquarters in Portland, Ore. He has been executive officer of Interior's Missouri River Basin field committee.

Francis J. Downing has been appointed public works commissioner for the City of Buffalo at a salary of $16,500 a year.

Robert E. Barbour has been named director of the Community Planning Division of the North Carolina State Department of Conservation and Development.

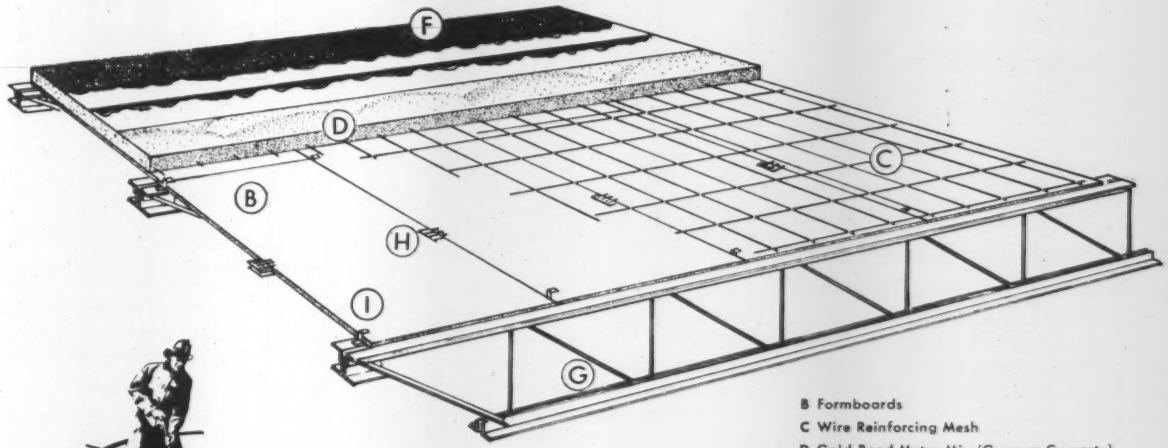
D. Robert Conrad has been named city engineer of Xenia, Ohio, having previously been service director and city engineer at Wilmington, Ohio.

Edmund Shockley has been named highway superintendent of Delaware County, Ind., succeeding **Ray Sutton,** who resigned. Mr. Shockley had been assistant superintendent.



A Sub-Purlins
B Formboards
C Wire Reinforcing Mesh
D Gold Bond Metro Mix (Gypsum Concrete)
E Main Purlins
F Built-Up Roofing

Design with or without sub-purlins with Gold Bond "Firefighter" Roof Decks



B Formboards
C Wire Reinforcing Mesh
D Gold Bond Metro Mix (Gypsum Concrete)
F Built-Up Roofing
G Bar Joists
H Connector Clips
I Welded "Z" Bar Clip (or #16 ga. Tie Wire anchoring mesh to bar joist).

Versatility is one reason why, in today's commercial and industrial construction, better than one roof deck in every four is poured gypsum. With Gold Bond "FIREFIGHTER" Roof Deck, for example...

You can design with sub-purlins—for longer clear spans between main purlins... to provide neat and attractive ceiling surfaces that are easy to decorate and maintain.

You can design without sub-purlins—for economical construction where suspended ceilings are planned or where the appearance of the under surface is not vital.

Either way, Gold Bond® "FIREFIGHTER" Roof Deck provides an incombustible, monolithic roof slab that goes on fast and lasts with rock-like ruggedness. For detailed specifications, consult Sweet's Catalogue 2g/Na—or write Dept. EN-28, National Gypsum Company, Buffalo 2, New York.

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NOW WITH LOW SPEED MOTORS FOR LONGER LIFE

SUBMERSIBLE SEWAGE and SUMP PUMP

For Economical **LIFT STATIONS**

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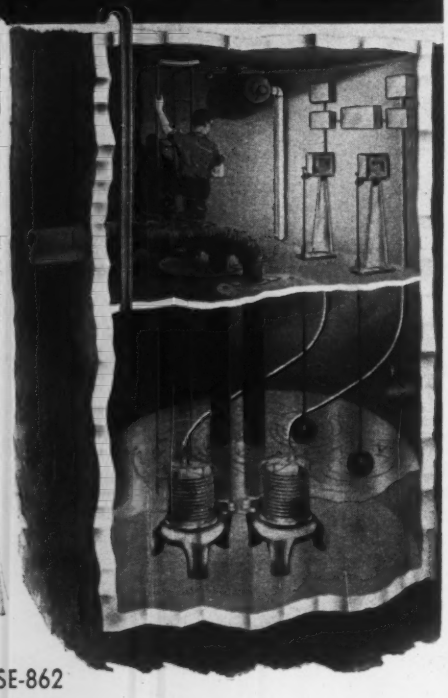

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A true NON-CLOG impeller, most efficient design for handling rags, stringy material and irregular solids with the liquids. 5" pumps will pass 4" solids.

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The **weil** Submersible NON-CLOG Sewage and Sump Pump has proven in thousands of installations that it operates efficiently and economically completely submerged under water. Depth of settings offer no problem; the only requirement is in selecting the proper unit with sufficient head to pump out of the sump. The pump is the same compact close coupled unit regardless of the depth of the pit.

Low Installation and Low Operating Cost

Economy and simplicity of installation — only one piping connection required — and very low maintenance due to the hermetically sealed motor, assure a low initial cost and years of trouble-free operation. No expensive pump house is required to mar the landscape.

Wide Range to Select From

The Submersible Ejector is available in discharges of 3", 4", 5" and 6" with heads to 60 feet and capacities to 2000 GPM. Motors of 1750 RPM or the new long-life slow speed 1150 RPM available for all units. Wide variety of controls available to fit special requirements.

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Obituaries

Charles E. Donaldson, 53, a supervising field engineer with Duane Lyman Associates, Buffalo, N. Y., architects, died December 8. He was a 1927 civil engineering graduate of Princeton University.

Arthur D. McVoy, 47, former director of Baltimore's Department of Planning, died early in December. Mr. McVoy, who received his degree in architecture from the University of Florida, became Baltimore's first planning director in 1948 and held the post until resigning this year. Prior to that he taught planning at Massachusetts Institute of Technology, and lectured at Harvard and the University of Washington.

James Jones, 75, contractor and former public works commissioner of Utica, N. Y., died December 18 in Utica. Many major construction projects in that area were under his direction.

S. Keith Keller, superintendent of the Pinellas County (Fla.) Water Department died in December in Clearwater. He was a past president of the Florida Section of the American Water Works Association and the Florida Sewage Association. In 1953 he was presented the George Warren Fuller Memorial Award by AWWA.

David A. Lawson, 66, city engineer, city surveyor as well as city tax assessor for 16 years in Louisville, died December 16 in Murfreesboro, Tenn. He attended Western Kentucky State College and was a graduate of Ogden College.

Richard L. Senior, 64, construction manager for F. H. McGraw & Co, died at his home in New Rochelle, N. Y. on January 21. During his 44 years in the field of construction, Mr. Senior served as a top man for many well known firms. For the three years prior joining McGraw in 1956, he was operations manager for Peter Kiewit on an Atomic Energy Commission project in Ohio. Previously he had been a general superintendent for both George A. Fuller and Merritt-Chapman & Scott. Among the projects completed under his direct supervision were several military installations, both in the U. S. and overseas, a 1000 bed veterans' hospital in Pittsburgh, Pa., and a $30 million job involving the construction of 3,000 dwellings and a shopping center at Park Forest, Ill. He attended Brooklyn Polytechnic Institute and Columbia University and for 35 years had been an associate member of the ASCE.

on the level...

or working upgrade!

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Faster on the level, a Rex has the production edge on uphill paving as well.

Every time you work upgrade, you set your Rex for transfer and discharge times to suit—short, medium or long!

Going uphill, a quick, simple adjustment speeds up the cycle time of your Rex. With the gravity assist of transfer and discharge, you set the paver for short time—with fast transfer through two large transfer chutes. Immediately, there's a 7.3% production boost over a medium setting. (On work where you use the medium setting, you also have faster operation with a Rex!)

There you have it. Going uphill doesn't have to slow down your yardage—not when you're operating a Rex! Only Rex has this quick *adjustable* transfer and discharge cycle advantage. Another of the many reasons why you'll be far ahead in batches and added profits per day with a Rex Hydrocycle Paver.

REX Hydrocycle Control has work-speeding advantages!

Amazing Hydrocycle literally "automates" the paver! Operator only sets batch meter and Hydrocycle's "hydraulic brain" takes over—controlling and operating the entire paving cycle. The human element is eliminated. There's no guesswork, *no guessing wrong—ever.* No wasted time. No operator fatigue—he stays alert and efficient, performing other functions better: traveling the bucket, swinging the boom, spreading the batch and moving the paver. Paving speed stays high all day long.

A Rex delivers the highest production—requires minimum of service.

See your Rex Distributor or write CHAIN Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

CONSTRUCTION REX MACHINERY

MOTO-MIXERS • BINS AND BATCHERS • BUILDING MIXERS • PUMPCRETE • RAILPORTER

CHAIN BELT COMPANY

PUMPS • PAVERS • SPREADERS • FINISHERS • FLOATS • CURING MACHINES • FORMS

Blaw-Knox paving equipment helps set production record on Illinois Toll Road

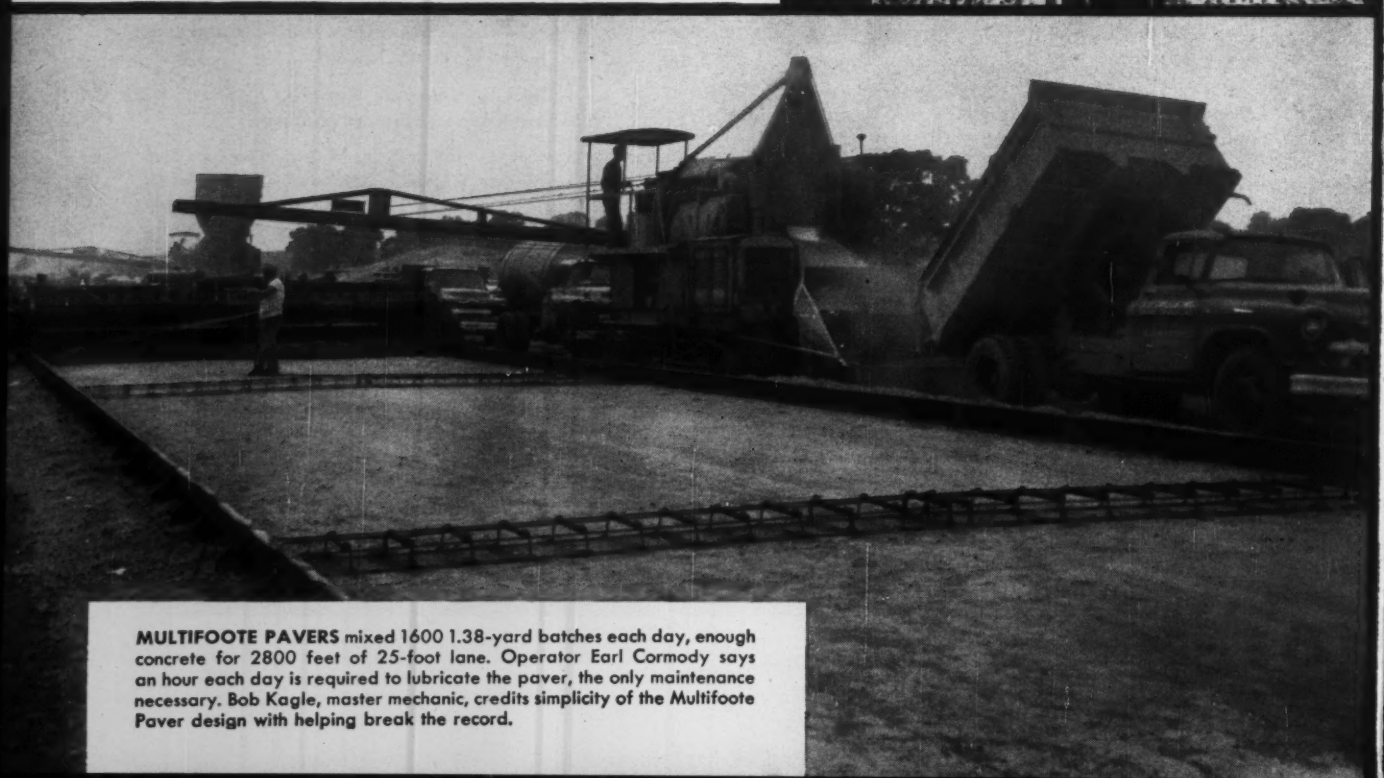
Rugged automatic equipment paves 3100 feet of 10-inch reinforced concrete, 25 feet wide, in a day's operation

Anthony Constantino, general superintendent for John C. Peterson Construction Corporation credits the "high efficiency and durability of the Blaw-Knox Machines" his company used on the Illinois Toll Road with an outstanding contribution to the performance of the John C. Peterson Construction Corporation Forces.

Reynold (Scotty) Scott, paving superintendent states that "The machines took a terrific beating by constant usage, but they have proven themselves to be rugged, durable and efficient. Any downtime would hold up the job with a serious financial loss, but with the Blaw-Knox Machines, we were able to complete our operation well ahead of schedule."

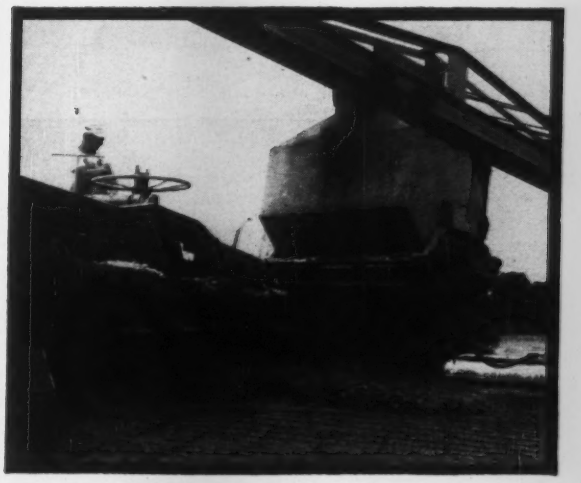
Record-shattering production to rigid specifications like those set for the Illinois toll road is being delivered time and again by Blaw-Knox Concrete Paving Equipment. All over America, contractors are squeezing more value out of their equipment dollar with Blaw-Knox machines. They're rugged, built for automatic, high production rates that mean more profit on every job. Why not see your Blaw-Knox dealer? He has all the details.

BLAW-KNOX PAVING EQUIPMENT USED: 10,000 10" x 10' self-aligning road forms—Precision Subgrader—two 34E Dual Drum Concrete Pavers—two Concrete Spreaders (one with vibrator)—Concrete finisher—Base Paver—Road and Shoulder Widener—Automatic Cement and Aggregate Batch Plants—four 6 cu. yd. HiBoy Trukmixers.



MULTIFOOTE PAVERS mixed 1600 1.38-yard batches each day, enough concrete for 2800 feet of 25-foot lane. Operator Earl Cormody says an hour each day is required to lubricate the paver, the only maintenance necessary. Bob Kagle, master mechanic, credits simplicity of the Multifoote Paver design with helping break the record.

BLAW-KNOX SUBGRADER cuts and levels the grade to the required 10" template. Running on Blaw-Knox road forms, the subgrader excavates by vibration of the forward edge of the cutting tool. Quick adjustable strike-off gives perfect final crown to the grade.

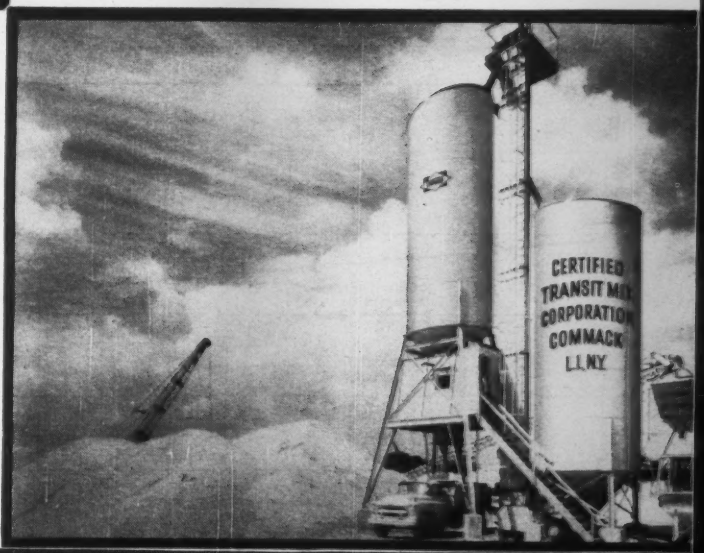


SPREADER distributes concrete uniformly to correct width and elevation without disturbing contraction joint baskets or reinforcing mesh. It is the only spreader that moves concrete longitudinally and transversely. Vibrator attachment consolidates and seals-off concrete for fast accurate finishing.

FINISHER strikes-off concrete to required crown and trowels surface, minimizing final floating operation. Quick crowning screed boards meet super elevated curves and tangent pavement requirements. Wide screed ends prevent spillage.

Electronically Controlled Batch Plant delivers once every 15 seconds

This Blaw-Knox automatic Batch Plant, owned by Certified Transit Mix Corporation kept 32 batch trucks rolling to the paving site seven miles away. Warren Morreale, plant superintendent, credits the smooth, high speed operation of 240 batches per hour with helping to set the paving record.



BLAW-KNOX

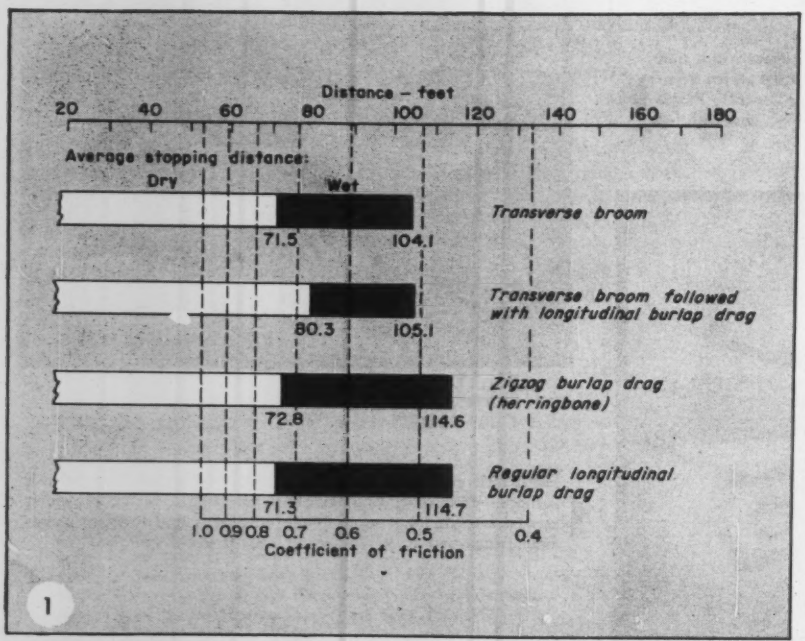
BLAW-KNOX COMPANY

Construction Equipment Division

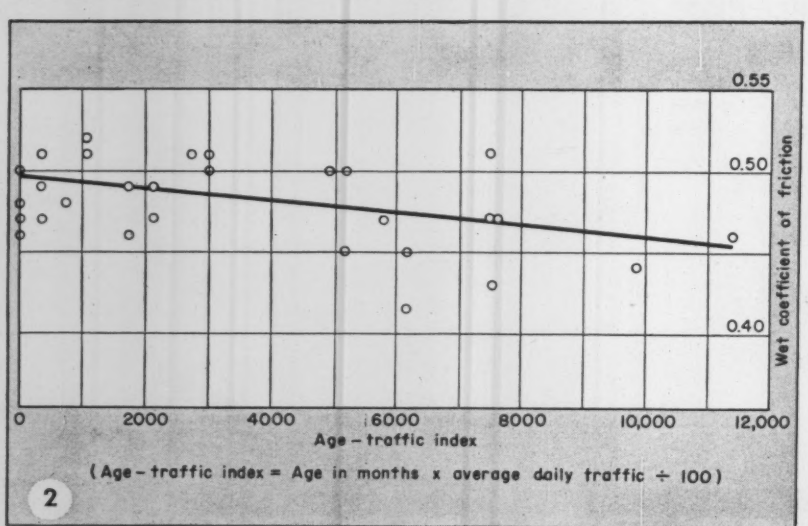
41 Charleston Avenue, Mattoon, Illinois

Road Tests Determine: What Makes

H. O. Thompson
Testing Engineer
Mississippi State Highway Dept.



RELATIVE STOPPING DISTANCES (when braking at 40 mph) on cement concrete pavements of various surface finishes are indicated for both dry and wet conditions.


0.55
0.50
0.40
Wet coefficient of friction
0 2000 4000 6000 8000 10,000 12,000
Age – traffic index
(Age – traffic index = Age in months x average daily traffic ÷ 100)
2

EFFECT OF TRAFFIC on pavement surface is to decrease the coefficient of friction. Sand-cement mortar finish wears off, exposing aggregates to polishing by auto tires.

Mindful that ever-increasing motor vehicle speeds demand a pavement that will insure sufficient skid-resistance for safe stopping, the Mississippi State Highway Department set out in 1955 to measure dry and wet stopping distances on all major types of surface on the state maintained system.

The tests developed further data on the fact that skidding is principally a function of tire tread and pavement texture. It is influenced by tire balance, brake adjustment, pavement irregularities, crown of pavement, transverse dips, temperature of pavement and other factors.

Also developed were standards for skidding resistance, in terms of three ranges of coefficient of friction, denoting "good" resistance, "satisfactory" resistance and "satisfactory with exceptions."

• **Test conditions**—This study included different finishes on concrete pavement as well as the effect of percentage of crushed particles in gravel seal aggregate used as the final course in a double bituminous surface treatment.

Sections tested were on about 200 projects scattered throughout the state, and their surface characteristics included: Cold mix surfaces, as slag mixtures, asphaltic limestone mixtures without quartz sand, asphaltic limestone mixtures with quartz sand, and crushed reef shell with quartz sand.

Hot mix pavements such as sand asphalts, modified sand asphalts, and asphaltic concrete. Concrete pavements tested consisted of new and old pavements. Data was obtained from approximately 2,000 skid measurements.

Previous investigators developed data that were most helpful to the department in the stopping distance study. Basic information was provided concerning some of the various factors that cause slippery pavements.

It was indicated that relative values could be obtained by the stopping distance method, used in accumulating data.

It is generally agreed that when the same car is used and is equipped with adequate and properly adjusted brakes, consistent results can be obtained on any given surface for the same test

Autos Skid?

conditions. Two new 1954 four-door sedans, equipped with electric detonators, were used in the study. Each car weighed 3,670 lb and was equipped with 6.70 x 15 four-ply tires.

A close inspection was kept on all tires on the test vehicles, and a new tire of identical type and size was placed on the vehicle as soon as any sign of tread wear was visible. The tire pressure was maintained at 30 lb, and the testing speed was 40 mph.

• **Test procedure**—All sites selected were on tangents and had level or almost level grades. Brakes on each vehicle were maintained in adjustment.

As soon as a speed of 40 mph had been attained, the brakes were applied, locking all four wheels. (Automotive engineers are in general agreement that maximum deceleration can be obtained by braking to a point just short of that required to lock the wheels.) The stopping distance method, using the measured skidding distance, eliminates perception and reaction time.

At the instant brakes locked, an electric detonator loaded with a chalk cartridge fired, making a mark on the pavement. This point was used as the beginning of skid. The equipment firing the chalk cartridge was electrically actuated through the brake-stoplight system. The distance was measured from the chalk mark on the pavement to the cartridge ejector attached to the front bumper. Measurements were made to the nearest 0.1 ft.

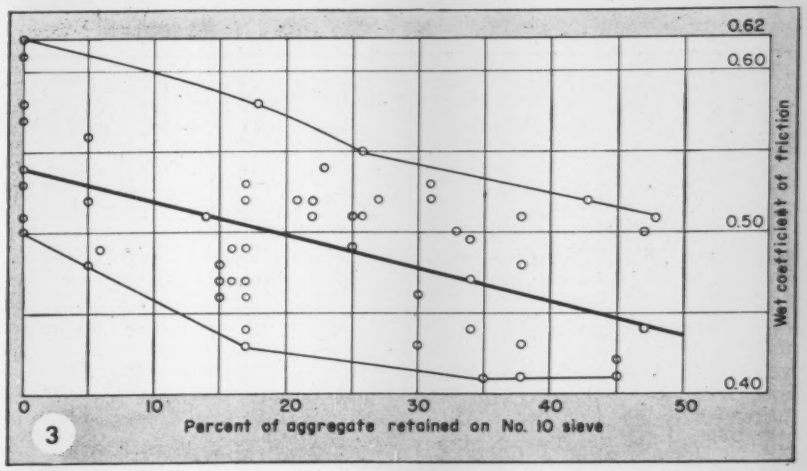
Usually three runs were made with the pavement in a dry condition. The pavement was then thoroughly wet down with water prior to each of three wet runs.

The test vehicles were subjected to severe conditions, and a mechanic was part of the testing crew. He replaced and adjusted brakes, replaced tires at the first sign of tread wear, and kept the cars in good operating condition at all times.

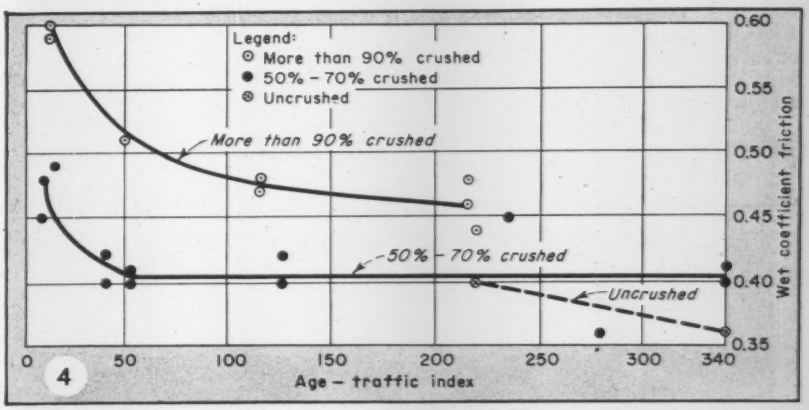
• **Data obtained**—The stopping distances of the dry runs were averaged for the dry stopping distance for each site. The stopping distances for the wet runs were averaged for the wet stopping distance for that site.

Average coefficients were obtained by applying the standard stopping distance formula:

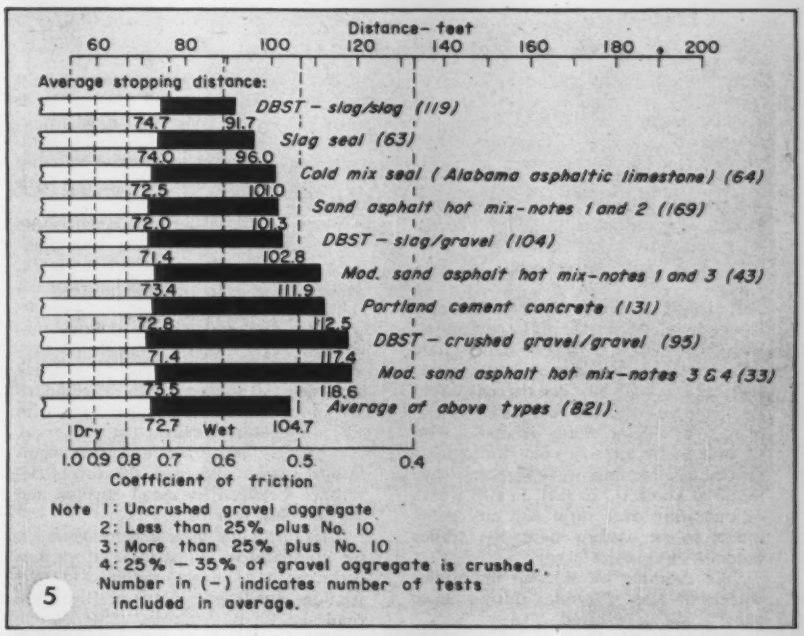
(*Continued on page 56*)



FRICTION IS REDUCED as the percentage of uncrushed gravel in a bituminous hot mix is increased. Note the increase in friction as aggregate size is reduced.



FRICTION INCREASES as more crushed gravel is added to the seal of a double bituminous pavement. Note the sharp drop when uncrushed gravel is introduced.



AVERAGE STOPPING DISTANCES at a testing speed of 40 mph are indicated for various types of surfaces having a coefficient of friction of 0.40 or more.

$$f = \frac{V^2}{30\,s}$$

where: f = Coefficient of friction
V = Initial speed in miles per hour at time of brake application
s = stopping distance in feet

A coefficient of friction of 0.40 was selected for the 40 mph speed on wet pavement as the minimum for a pavement on which emergency braking would provide a safe stopping distance under ordinary driving conditions. Surfaces that yielded values less than 0.40 under the above conditions were considered undesirable.

This study confirms the fact, already established by other investigators, that age of pavement surface and volume and type of traffic generally had a direct bearing on the coefficient of friction.

For example, in reporting "A Study of Pavement Slipperiness in Tennessee", Mr. Whitehurst and Mr. Goodwin used a term "Traffic Index". Traffic and age of pavement were taken into account. The formula used is:

$$\text{TRAFFIC INDEX} = \frac{\text{Age (in months)} \times \text{Average Daily Traffic}}{100}$$

• **Data developed**—The pavement referred to in **Chart 1** is a section of US 51 south of Jackson, Mississippi. Traffic count is 7,260, and the pavement was 264 days old at the time of the tests. Since the pavement was cured with liquid membrane curing compound, sufficient time was allowed for traffic to wear off the curing compound.

All concrete pavements tested and included in **Chart 2** were made of gravel aggregate. Tested were 29 different locations and the age varied from new pavement to pavement over 25 years old. The Age-Traffic Index ranged from 0 up to more than 11,500.

The curve is not all-conclusive, but, generally, the trend appears to be downward. As the traffic wears the sand-cement mortar finish from the top of the surface of the pavement, and exposes the gravel aggregates (which take on a high polish when exposed to heavy rubber-tired traffic), the wet stopping distance increases.

Another contributing factor towards reduction of coefficient of friction on some pavements is the accumulation of oil drippings.

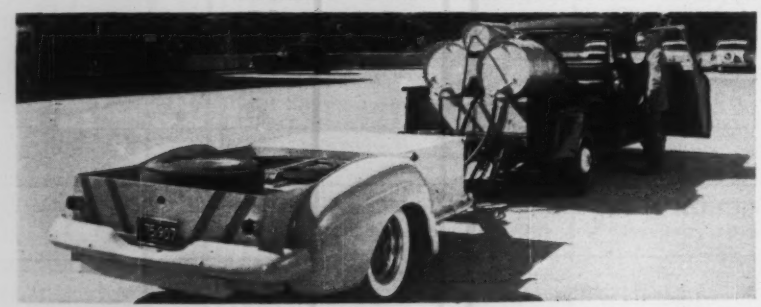
Chart 3 shows the decrease in wet coefficient of friction as the percentage of uncrushed gravel increased in bituminous hot mix pavements.

Mixtures containing all fine material (nothing retained on No. 10 sieve) had a wet coefficient of friction ranging from 0.5 to above 0.60. On the other hand, sections having 40% or more uncrushed gravel material retained on No. 10 sieve had wet coefficient of friction ranging from 0.42 to 0.51.

These data appear to support the idea that sandpaper-like textured pavements, properly constructed, yielded excellent stopping distances.

In the testing of stopping distances on sand asphalt pavements, it was noticed that there was very little tendency

Trailer Tests Skid Potential of Pavement.



To help highway engineers measure "skidability" of road surfaces, General Motors Proving Grounds staff has developed a simple, inexpensive "skid trailer" for use on any type of pavement.

Formerly known as a "road coefficient of friction trailer", the device is an assembly of truck and auto parts from any parts department or junk yard.

Assistant Proving Ground Director Kenneth A. Stonex and Experimental Engineer Paul C. Skeels deliberately designed the unit from salvage materials so any highway department could duplicate and operate it at low cost.

The Michigan State Highway Department has already built a duplicate unit and other highway agencies have inquired about it. In fact, in two weeks of operating over rural and city pavements in an eastern state, the trailer made 4,000 tests.

"We estimate we skidded the trailer wheels at least 27 miles during those runs," Skeels declared.

"We believe anything we can do to help highway people with safety checks of road surfaces will certainly help our automotive people," Skeels said. "This unit can be towed anywhere in the traffic flow, uphill or downhill. Other devices used to require blocking off stretches of road, interfering with traffic."

Work on the trailer idea began some three years ago when GM was planning new roads for its private network. The problem was to check surface coefficients of friction to compare various types of concrete and bituminous materials.

First they used a large tank truck operating in tandem with a standard automobile. The auto braked only with its rear wheels, whenever the tank truck doused a section of the road with water. Strain gauges measured the forces developed between the road surface and the skidding rear tires.

This technique indicated immediately the comparative slipperiness of various surfaces particularly when wet—the friction coefficient between tire and road.

"This was a rather slow and awkward way to do the job," Skeels admitted, "so we tried doing it with a standard light truck pulling a trailer. Moreover, we realize information we were getting about our own roads was an important safety factor that certainly would interest highway engineers."

The new unit consists of water tanks (converted oil drums) on the truck. Water is piped to two spouts in front of the trailer wheels. As the unit cruises along the highway, the operator in the truck cab merely flicks a switch that squirts water under the trailer wheels and locks the trailer brakes.

As the trailer wheels skid, the coefficient of friction is instantly registered on a dial in the truck cab in front of the operator. In some runs, the "skid trailer" has checked road surfaces every one-tenth of a mile.

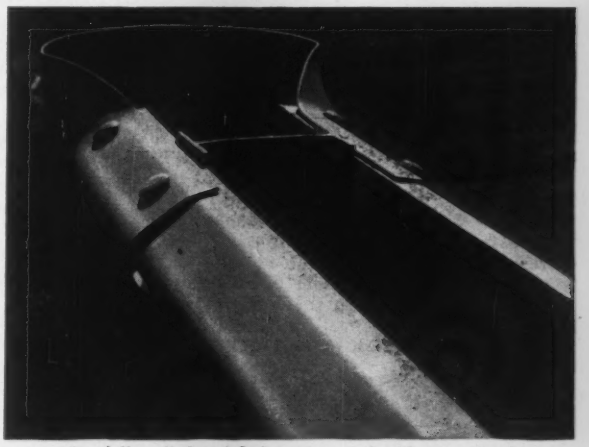
It was pointed out that surface friction coefficients vary not only with the type of materials used but also from the constant polishing action of automobile and truck tires on heavily traveled stretches. The "skid trailer" enables highway engineers to detect these changes from tire polishing action and resurface slippery spots.

Safety Down the Middle

Mounted back to back on steel posts and installed as a median barrier, Bethlehem Beam Guard Rail provides a double strip of steel, strong enough to withstand severe shocks from colliding vehicles from either side. Yet it is flexible enough so that in most cases, the vehicle is redirected parallel to the rail with minimum damage to vehicle and rail.

Beam Guard Rail comes in standard 12 ft 6 in. lengths of either 12 or 10 gage steel. However, lengths and fitting-up specifications can be adopted to any need. Currently, Beam Guard Rail is installed as median dividers on the Pennsylvania Turnpike, New York Thruway, Connecticut Turnpike, New Jersey Turnpike, the Merritt Parkway, and highways in Illinois, Maryland, and other states.

We will gladly send you our new booklet "Bethlehem Beam Guard Rail," No. 435, which gives full details and specifications. Just contact the nearest Bethlehem sales office, or write to us direct at Bethlehem, Pa.



Specially-rolled end-fitting protects double row of rail

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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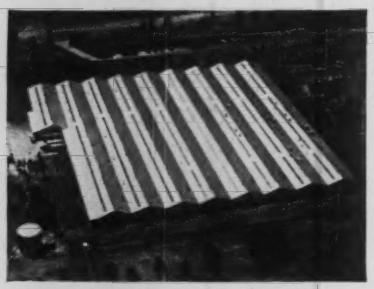
It makes sense to standardize on buildings, too!



Standardized Butler metal buildings are available from stock in sizes from a small pump house to structures of any desired width and length.

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buildings

Everyone knows that standardization brings down costs. But is it—at last—practical in construction too? Thousands of firms—large and small—have learned that it is extremely practical—with Butler pre-engineered metal buildings.

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for the vehicle to skid sidewise—the vehicle moved forward in a straight skid.

Chart 4 shows the effect on wet coefficient of friction of double bituminous surface treatment when the amount of crushed gravel particles used in the seal is varied. The Age-Traffic Index of these projects has been plotted against the wet coefficient of friction.

The top curve represents projects where gravel seal aggregate contained more than 90% crushed particles. Shortly after the projects were constructed, the wet coefficient of friction measured 0.58 or better. Projects containing 50 to 70% crushed gravel particles in the seal, gave a wet coefficient of friction of 0.45 to 0.48, a much lower value than the "90% crushed" jobs.

It is noted that at an Age-Traffic Index of 50 (or, 500 vehicles per day for 10 months) the wet coefficient of friction for both the "90% crushed" jobs and the "50 to 70% crushed" jobs dropped considerably. This is probably caused by the embedment or setting of the seal aggregate particles in the mat. It takes approximately three years for a traffic count of 500 vehicles per day to reduce the wet coefficient of friction on the "90% crushed" jobs to a value equal to that of the "50 to 70% crushed" jobs when first constructed.

• **Friction values**—Friction value, both in dry and wet tests, follows the same pattern, the highest values being obtained on the more angular aggregate.

Only two projects with uncrushed gravel in the primary and seal courses were available for tests. One of these projects had a wet coefficient of friction of 0.40, and the other project had a wet coefficient of friction of 0.36.

A considerable decrease in the friction value of rounded aggregates, had been previously found, particularly in the wet test.

It follows that considerable improvement could be affected by using sharp sand or angular chips instead of rounded gravel in small sizes for the seal course.

Generally, a wet coefficient of friction below 0.40 on this type of construction was caused by excess bitumen (bleeding) and/or polished aggregates. Excess asphalt has a pronounced effect in reducing friction values.

Chart 5 records the average stopping distance for several of the various types of pavement surface tested, which had wet coefficient of friction of 0.40 or higher.

Of approximately 200 projects tested, 28 were found to have sections having coefficients of friction (wet pavement) under 0.40. The average data for the group that tested below 0.40 are, in part, as follows:

	Dry Ft	Wet Ft	Coefficient of Friction Dry	Wet
Average stopping distance	77.1	152.7	0.69	0.35
Minimum stopping distance		135.2		0.30
Maximum stopping distance		219.6		0.24

The 0.24 reading was on a double bituminous surface treatment project sealed in late fall, and a large portion of the seal aggregate did not stick in some sections. These sections were resealed the following spring, and the result was excess bitumen. These sections were bleeding badly at the time of tests and "Slippery When Wet" signs were found on the project.

Most of the sections in this group which fell below the value of 0.40 could be attributed to excess bitumen or polished aggregates.

The maintenance division was notified of the sections falling below a value of 0.40, and these sections have been resealed to improve their friction value.

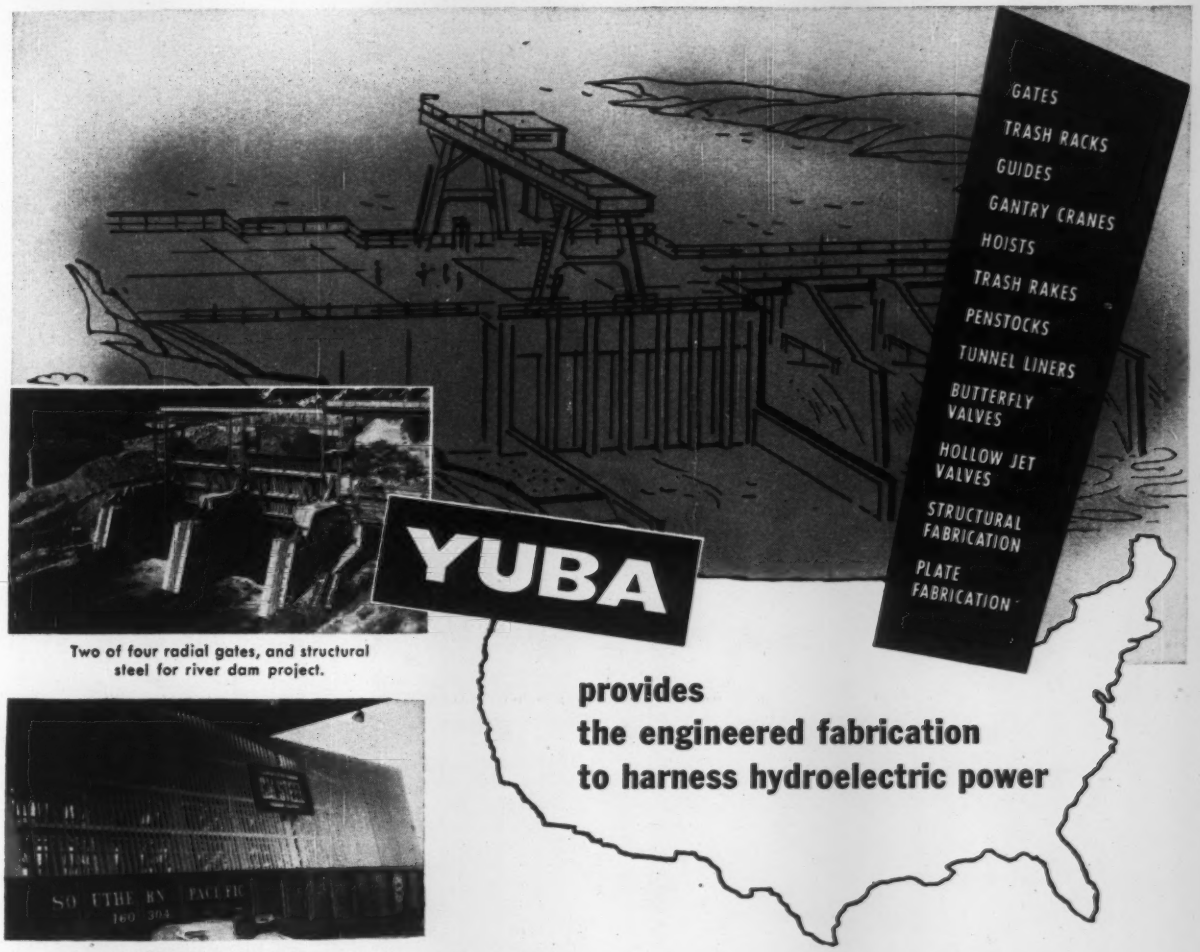
• **Less skid but more wear**—Surfaces can be constructed with extremely high frictional values; however, as the coefficient of friction increases, the tire wear also increases. It was found that tire wear for a coefficient of friction in the range of 0.50 to 0.60 at a 40 mph speed averaged from one-half to one-third of the tire wear on sharp stone and gravel, yielding coefficients of 0.70 to 1.10.

Tire wear at a speed of 60 mph on highly abrasive surfaces (values above 0.70) was found to be 11 times greater than at 35 mph on surfaces with lower coefficients of friction.

• **Standards**—A recent article by George Giles of the Road Research Laboratory of England and abstracted by J. E. Gray, Engineering Director of the National Crushed Stone Association, suggested standards for skidding resistance converted to 40 mph speed.

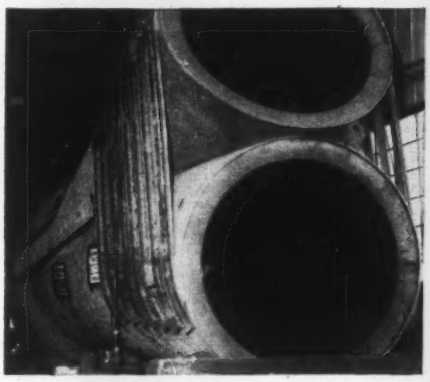
1. Coefficient 0.66 and greater—A good resistance to skidding, fulfilling requirements even for fast traffic.
2. Coefficient 0.56 to 0.66—Generally satisfactory, meeting most requirements except for curves on a road under fast traffic.
3. Coefficient 0.46 to 0.56—Satisfactory, except for conditions at critical sites such as junctions and curves.

It follows, if good resistance to skidding is to be obtained in a pavement surface when the pavement is wet, the composition of the mix must be sound and the aggregate must be of the kind that will remain rough and resist severe polishing under traffic.



Two of four radial gates, and structural steel for river dam project.

Part of 3,000 ton trashrack shipment.



105" Wye for western powerhouse.

provides the engineered fabrication to harness hydroelectric power

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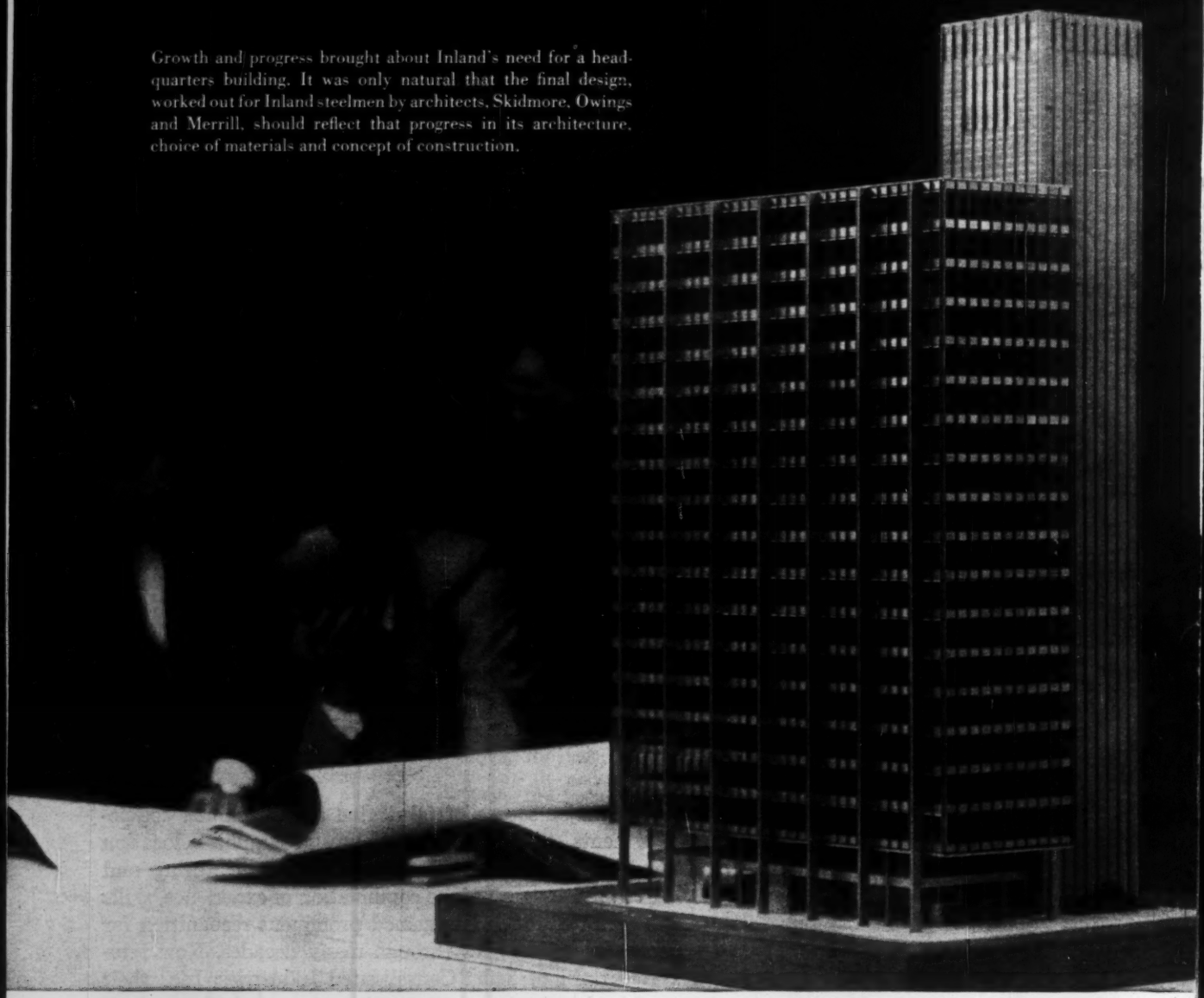
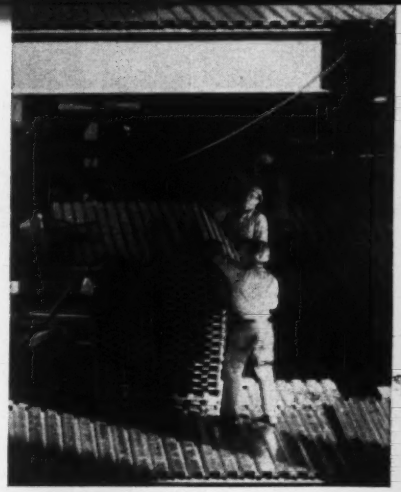


Growth and progress brought about Inland's need for a headquarters building. It was only natural that the final design, worked out for Inland steelmen by architects, Skidmore, Owings and Merrill, should reflect that progress in its architecture, choice of materials and concept of construction.

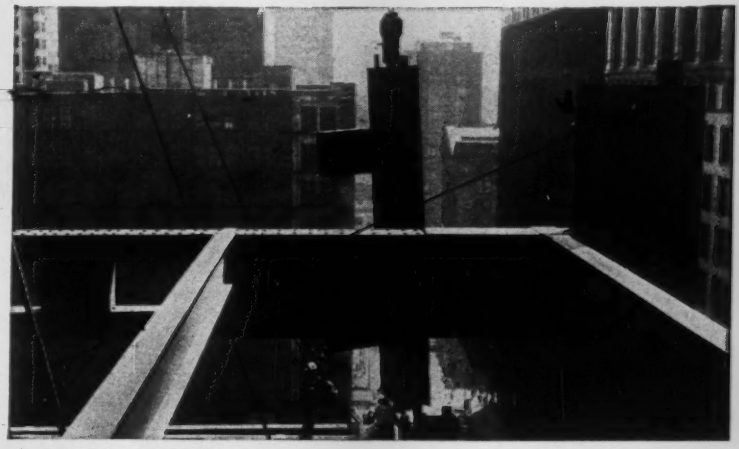
Chicago..Steel..and a new idea

Growing with the Midwest, the Inland Steel Family of Companies Builds a Unique Home Office in Chicago

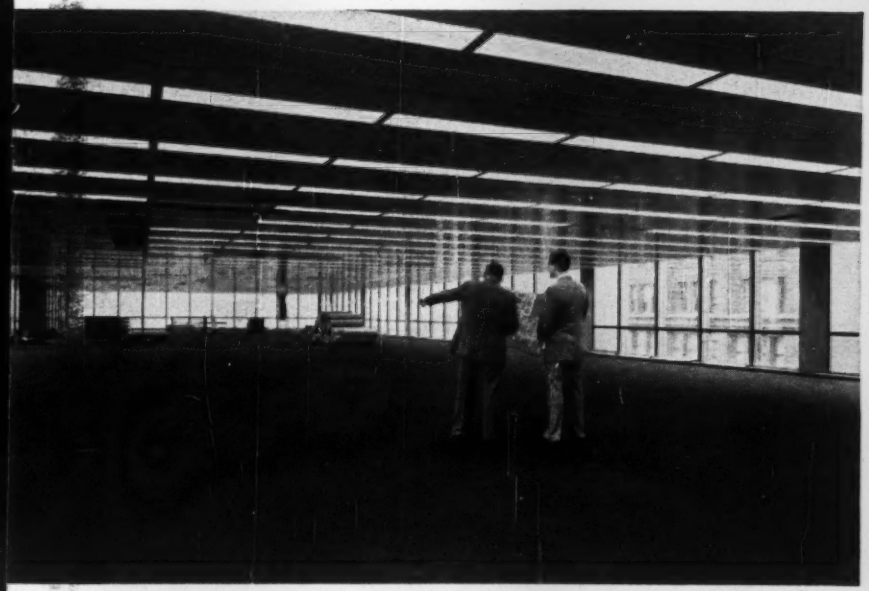
The new headquarters building of Inland Steel Company in Chicago's Loop is the only building of its kind in the world. It is steel from the top of the 25-story service tower to three levels below Dearborn and Monroe Streets. The architecture is bold—and different. So was the engineering necessary to erect it. Important contributions toward its construction were made by members of the Inland family . . . each one a steel specialist. The end result is an unusual building . . . a building in which no columns obstruct or interfere with interior space, in which office planning and arrangement is completely unhampered. Sheathed in stainless steel and glass, with clean and simple lines, the Inland building has a "look of the future", symbolizing Inland's faith in steel and in a growing Chicago and Midwest.



A unique example of welded construction. The main load-bearing girders that span the 60-foot width of the building are welded to the fourteen vertical columns. The girders and columns were made up from angles, beams and plates using submerged arc welding in the Joseph T. Ryerson Chicago plant. Shown here, a two-story section of one of the supporting columns is hoisted into place. Inland Hi-Bond® reinforcing bars for concrete walls and basement slabs were also fabricated by Ryerson, steel distributing member of the Inland family. ▼

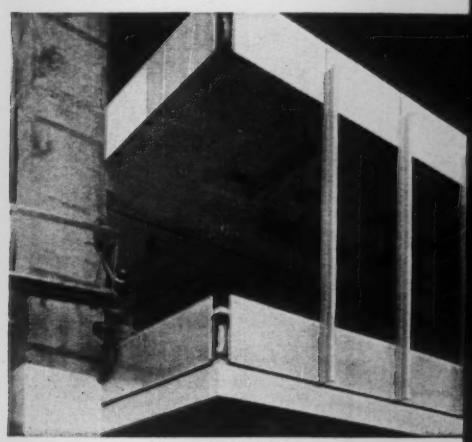


Cellular steel sub-flooring carries utility services. ▲ Milcor Celluflor®, 750 tons of it, supplied by Inland Steel Products Company, sheet metal manufacturing member of the Inland family, helps make possible an uncluttered interior. All utilities, power and light, communication lines, hot and cold air are distributed through the cells in this steel sub-flooring made of Inland TI-CO® galvanized sheets.



▲ *Widest clear span multi-story building.* The Inland Steel Building is literally turned inside out. The supporting vertical columns are on the exterior leaving the inside completely unencumbered. This new design concept, plus the removal of all elevators, stairs, washrooms and other vertical risers to an adjoining service tower, means a completely flexible, open office area in the main building.

Curtain walls of stainless steel. One of the lightest, thinnest curtain walls ever used, made of 16 gage, flat stainless steel panels bonded to 2 inches of concrete fireproofing, helped to save 200 tons of structural steel in the Inland building. Ryerson supplied the stainless steel (over 400 tons) and the technical assistance on its fabrication. The main building's exterior surface is 70% solar-tinted, double-pane glass and 30% glistening stainless steel. ▼



INLAND

INLAND STEEL

30 W. Monroe St., Chicago 3, Ill.

INLAND STEEL COMPANY—producer of basic open hearth sheets, plates, bars, structural shapes, tin plate, rails and coal chemicals.

JOSEPH T. RYERSON & SON, INC.—the nation's largest supplier of steel from stock—with 18 plants serving the major industrial areas.

INLAND STEEL PRODUCTS COMPANY—manufacturer of Milcor Celluflor® and a broad line of other steel products for the building industry.

INLAND STEEL CONTAINER COMPANY—manufacturer of carbon steel and stainless steel shipping drums and pails.

INLAND LIME & STONE COMPANY—producer of high purity limestone for steelmaking, construction, agriculture and paper making.

University of Michigan's Switching Station

Uses Youngstown "Buckeye" Conduit

to Protect Electrical Wiring Systems . . Permanently

University of Michigan's new, up-to-the-minute, West Hospital Switching Station has positive, permanent electrical system protection—thanks to Youngstown's Full Weight Rigid Steel "Buckeye" Conduit. Damaging elements such as water, moisture, vapor, dust and dirt will never cause electrical faliure—because "Buckeye" will be on the job around-the-clock for the life of the building.

Electrical systems that fail to function properly are definitely a bad investment—from any standpoint. So to make sure your installations are safe and efficient, always specify Youngstown "Buckeye" Conduit—as so many of our leading owners, architects and contractors have done for years.

Satisfied "Buckeye" users across-the-country report to us, "It's easier to thread and bend—easier to fish wires through—and best of all, we get longer service life because it's so thoroughly corrosion-resistant."

Leading distributors in all industrial and electrical markets are ready to serve you quickly and efficiently from their ample stocks. They're as near as your phone—why not call today?

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices - Youngstown 1, Ohio

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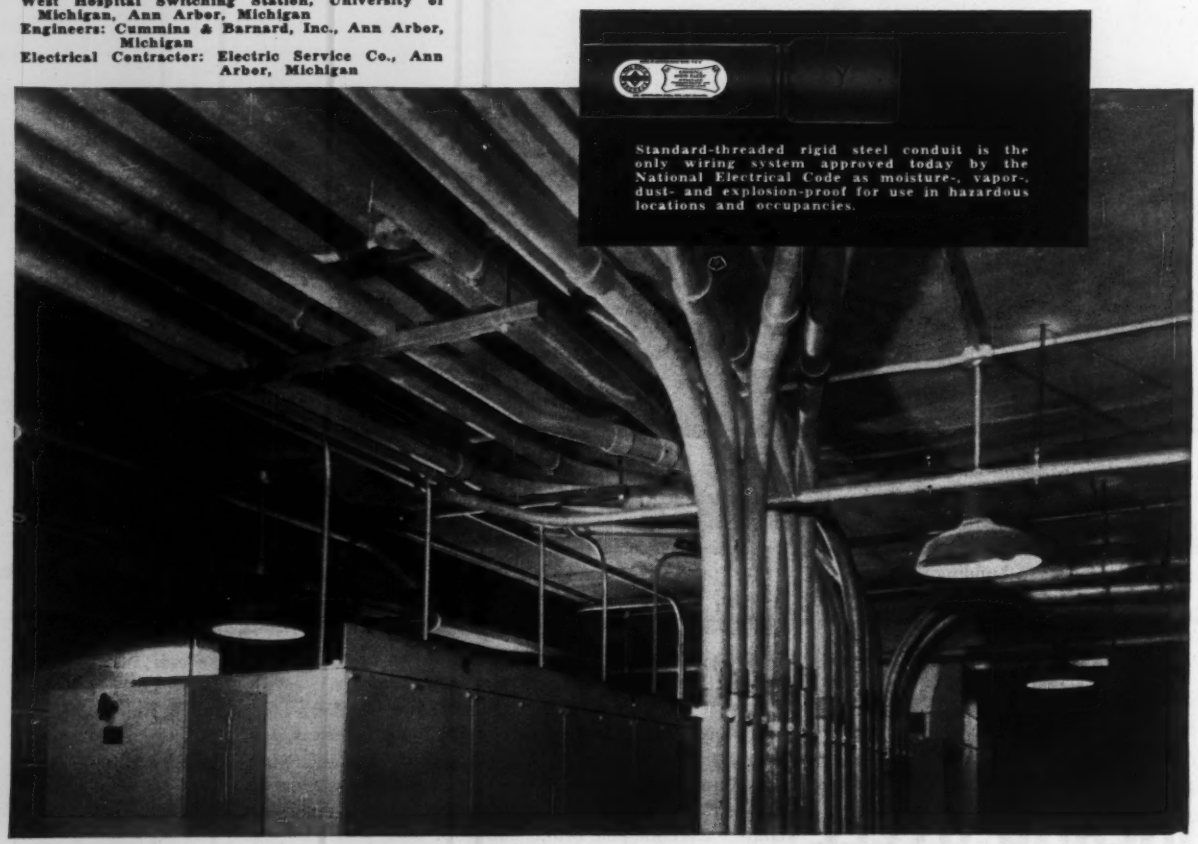
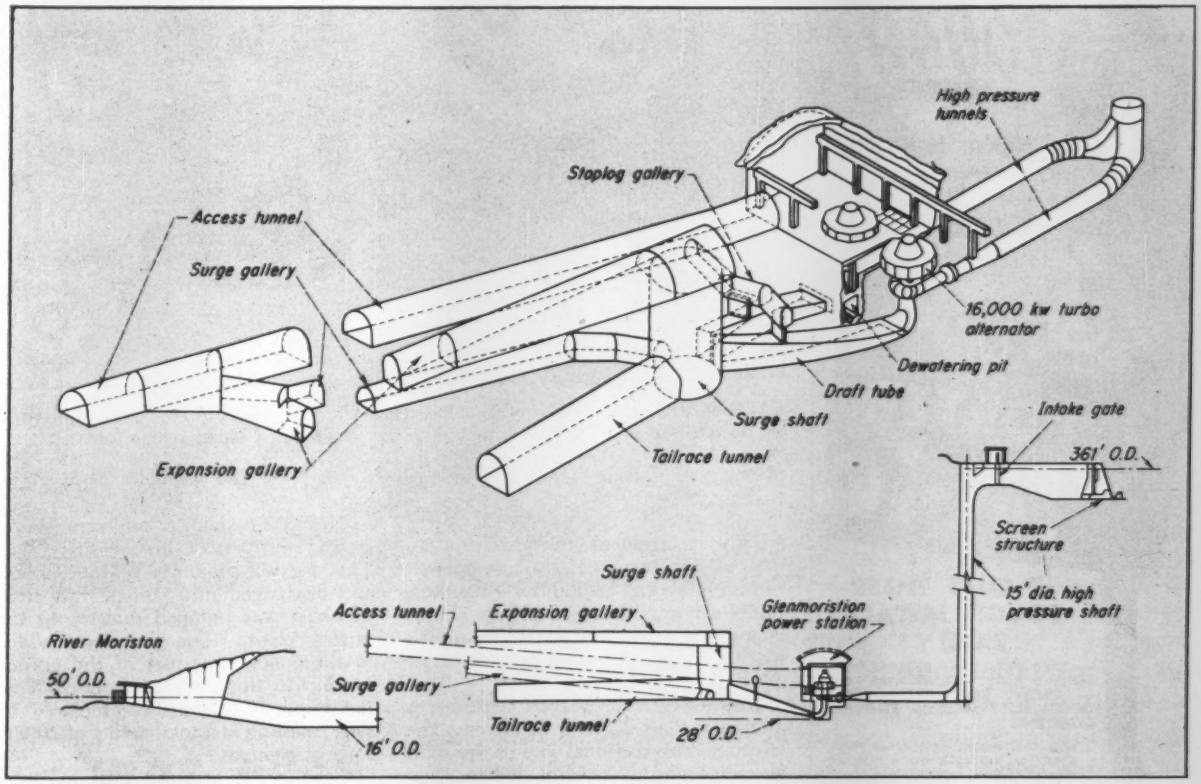
West Hospital Switching Station, University of Michigan, Ann Arbor, Michigan
Engineers: Cummins & Barnard, Inc., Ann Arbor, Michigan
Electrical Contractor: Electric Service Co., Ann Arbor, Michigan



Standard-threaded rigid steel conduit is the only wiring system approved today by the National Electrical Code as moisture-, vapor-, dust- and explosion-proof for use in hazardous locations and occupancies.



Rocks bolts, grouting and lining are Rx for an . . .

Underground Powerhouse in Poor Rock

The recently completed Glenmoriston power station in the Highlands of Scotland contributes significantly to the increasingly popular underground powerhouse art.

Constructed by the North of Scotland Hydro-Electric Board on the Moriston River, Glenmoriston features an underground cavern in poor rock, an unusual tailrace surge chamber and remote operation in conjunction with a sister underground power plant at Ceannacroc completed in 1956.

Both powerhouses are in an area of altered sedimentary and igneous rocks, mainly schists and granulites with close "graining" imposed during metamorphism. At Glenmoriston, cores and a subsequent test shaft showed complex jointing and some shattering, but it was decided that the rock could withstand excavation stresses and the station could be constructed without undue difficulty.

During excavation of the 104 x 46 x 80 ft high chamber, there was a 50,000 gal per hour inflow of water due to the weak and shattered rock. For this reason, after the cavern was excavated the walls were strengthened by rock bolting, lining and grouting. The Perfo roof bolting and rock anchoring method was used. This Swedish developed system consists of perforated steel half sleeves filled with mortar, tied together and placed in the drill hole. High tensile steel bolts, in this case 1 in. in diameter and 9 ft long on 4 ft centers both ways, were pushed through the sleeve forcing the mortar through the perforations and filling the hole (ENR Aug. 15, 1957, p. 86). Three days after being driven the bolts withstood a direct pull of 18 tons.

After the bolting, a concrete lining of 12 in. minimum thickness was applied. Reinforcement, consisting of ¾ in. dia bars at 12 in. centers both ways, was fixed to the rock bolts with special connectors screwed to the threaded ends of the bolts. The walls eventually were pressure grouted in three stages and finally shallow pressure relief holes were provided.

The effective life of the rock bolts is said to be uncertain, but it is considered that the grouting, apart from sealing fissures, contributes towards permanent strengthening and stabilizing of the walls.

Attempts also were made to relieve water bearing fissures by drilling long holes from the surge shaft over the chamber. This has reduced inflow to the chamber.

The roof at Glenmoriston is designed as a barrel vault concrete arch capable of carrying a load equivalent to a 15 ft thickness of rock. Before it was placed it was necessary to construct a temporary lining of corrugated sheeting for protection of machinery from dripping water. Even now, though, the roof leaks, but provision has been made to construct a false ceiling if grouting

WHEN THAT METAL CUTTING JOB IS REALLY TOUGH!

Make it EASY! (and cut costs) with this . . . . RUGGED POWERFUL

HKP PORTER HEAVY DUTY CUTTER

IT CUTS THESE TOUGH METALS EASILY!

— HARD METALS — CONCRETE REINFORCING RODS — HARD WIRE ROPE — CHROME BALL WIRE — COLD DRAWN ALLOY STEEL — TEMPERED STEEL WIRE

Why fool around with other tools, when the job calls for a PORTER HEAVY DUTY METAL CUTTER? Let those heat-treated, drop-forged, abuse-resistant jaws make the work easy, and less costly. Handles on 590HD size are all steel. This rugged, multi-job tool is designed for cutting the hardest bolts, rods and hard cable. Nothing better for construction companies and heavy industries.

for CUTTING STEEL CABLE and WIRE ROPE use the STEEL CABLE CUTTER

The jaws in this shear-action, clean cutting STEEL CABLE CUTTER are notched to lock the cable in during cutting action to minimize crushing. For cutting soft or hard steel cable or wire rope up to ¾".

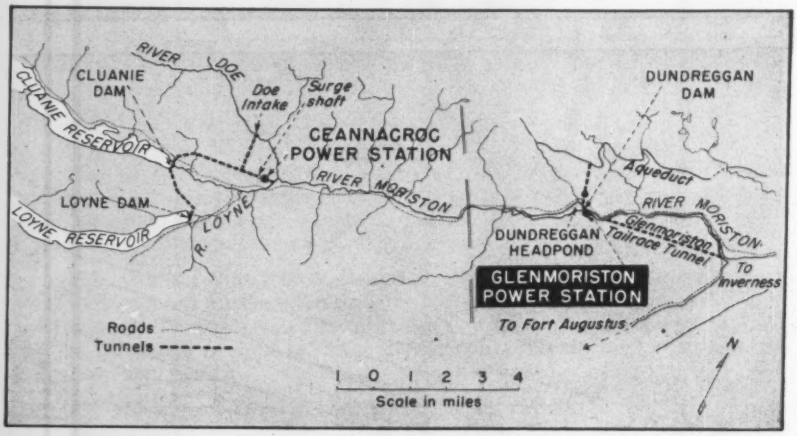
for CUTTING CHAIN use the HARD CHAIN CUTTER — 590HC

The right way to "cut" hard chain, alloy and case-hardened tempered spring wire and case-hardened bolts and screws is to crush (not cut) them with the center cut, round edge action of this PORTER HARD CHAIN CUTTER. Cuts one side of link at a time to prevent damage to tool. Capacities up to ½".

WRITE for catalog showing these and other PORTER METAL CUTTING TOOLS.

HKP

H. K. PORTER, Inc.
Somerville 43, Mass.



GLENMORISTON and Ceannacroc underground power stations in Highlands of Scotland are operated from a centralized control center remote from either station.

of the roof does not eliminate leakage entirely.

• **Surge arrangement**—Glenmoriston station houses two vertical shaft Francis turbines driving 16,000 kw generators under a normal head of 285 ft. There is no surge problem upstream of the machines since the head pond capacity gives adequate damping effect.

But downstream of the draft tubes is a circular shaft 32 ft in diameter. The effective cross-sectional area of the shaft is enhanced by a surge gallery that branches from the base of the shaft. An expansion galley 12 ft in diameter extends from an enlargement at the top of the shaft for 660 ft and intersects the surge gallery.

A short heading connects the junction of the two galleries with the station access tunnel. This heading serves both to vent the surge system and provide an access, via the surge gallery, to the upstream end of the tailrace tunnel for construction and maintenance purposes. A removable bulkhead is provided to close off the lower part, to prevent overspill from the surge system into the access gallery.

The tailrace tunnel starts from the base of the surge shaft opposite the draft tubes and has a downgrade of 1:50 for 1,350 ft.

• **Second station**—The second underground station, Ceannacroc, is fed from two reservoirs formed by the Loyne and Cluanie Dams. Loyne is 58 ft high with a crest length of 1,745 ft and Cluanie is 128 ft high with a crest length of 2,220 ft.

Construction of Cluanie Dam featured the use of precast concrete panels as forms for mass concrete (ENR May 16, 1957, p. 81) and the use of a slag (Trief) cement as a substitute for 70% of the normally required cement.

The Trief process produces a wet ground slurry from blast furnace slag. The slag was grounded at the damsite and discharged into storage vats from which it was pumped directly to the mixing plant. The slurry was added to the concrete as part of the normal batch. In this manner about 70% of the required cement was replaced by slag, resulting in a total saving of 20,000 tons of cement.

Ceannacroc station itself operates between gross heads of 205 ft and 267 ft. An unlined tailrace tunnel of 19 ft dia and 1,706 ft length is designed for open channel flow at all times except following fast load acceptance coinciding with high flow in the river. This possibility is remote, however, and no special provisions for downstream surges were considered necessary. Upstream of the station is a surge shaft of 45 ft dia and 164 ft depth, open to the atmosphere.

The underground chamber is 96 ft long, 47 wide and 82 ft high, and has a barrel vault roof of concrete similar to Glenmoriston. But its walls are bare rock paneled in appearance by the reinforced concrete columns and beams for the overhead traveling crane.

On one wall, where some small rock was encountered, chain-link wire mesh was pinned to the rock by grouting in ⅜ in. dia bars and bending them over the mesh. The surface then was gunited.

A vented gallery connected with the free-flowing tailrace provides natural ventilation while hot air is exhausted through the access tunnel.

Lighting of Ceannacroc station is somewhat novel and consists of continuous fluorescent trough fittings mounted behind the crane beams, allowing light to project upwards and downwards. The

not even king size boulders stopped this Manitowoc!

Huge boulders . . . too big to pass through the dipper . . . didn't stop this Manitowoc 2½-yd. Model 3500 shovel from loading out an average of 1200 to 1300 yds. of abrasive granite every 7½ hour shift. Goodfellow Brothers of Wenatchee, Washington used two of the Model 3500 rigs for handling rock on a Washington State Highway project. This was a rush job . . . moving over 160,000 yards of rock alone in four month's time.

This rock was hard to blast which resulted in the huge, hard-to-handle boulders. However, the Model 3500 shovels have the power, speed and capacity to keep haul units moving in a steady stream from the job area. Simple, balanced design throughout delivers more horsepower to the dipper . . . there's no wasted power. The entire machine has only 14 gears and pinions and only working gears turn . . . a power-saving feature found *exclusively* on Manitowoc shovels and cranes. A massive, one-piece carbody mounted on long, wide-spread crawlers provides greater stability. Many other features give you advantages to bid lower . . . make more money on any job.

Your Manitowoc distributor will show you why Manitowoc beats them all for more profitable, powerful performance . . . call him now!

Manitowoc

MANITOWOC ENGINEERING CORP.

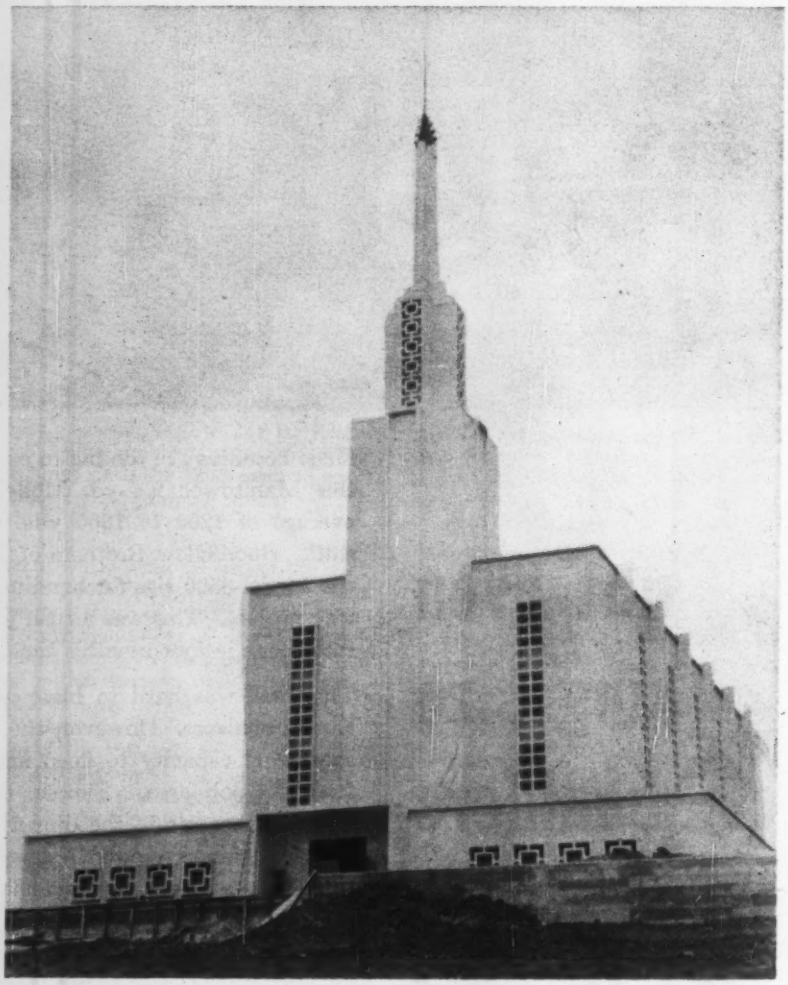
MANITOWOC, WISCONSIN

CRANES	SHOVELS	DRAGLINES	TRENCH HOES
20 TON - 100 TON	½-YD. - 5½-YD.	½-YD. - 6-YD.	½-YD. - 2½-YD.

effect is to over emphasize the natural rock walls and concrete roof from which light is reflected. The roof, crane, crane beams and columns are painted white except for the south wall, which is dull red. The machine and control panels are finished in light blue. The general effect of the lighting and color arrangement is similar to daylight.

The 11 kv power cables and control cables to the transformer's switch gear are laid in concrete ducts along both sides of the roadway in the access tunnel.

Information for this article was furnished by C. M. Roberts, partner of Sir William Halcrow & Partners, London, consulting engineer on the project.



Maori Volunteers Build Mormon Temple

The Southern Hemisphere's first Mormon Temple is nearing completion at Hamilton, on New Zealand's North Island.

Using materials paid for by U. S. Mormons, unskilled volunteer workers—mostly Maoris, New Zealand aborigines—are erecting the edifice. American construction experts are supervising the job.

The temple, with a materials cost of $1 million, is the hub of an $11 million building project, the construction of a new Mormon college. Included in the 87 acre development are a 4,500 seat auditorium, swimming pool and theater. Surrounding the area is the college's 1,500 acre farm.

In plan, the temple is 159 x 84 ft. It rises 175 ft above ground to the tip of a 38 ft bronze spire. With five stories and two basement levels, the building contains 75 rooms. The principal construction material is concrete block, made by the development's own plant.

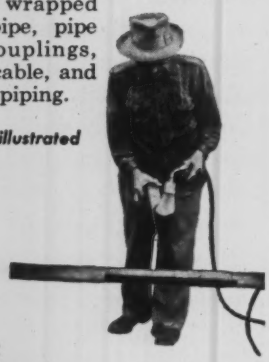
Do You Have This PIPE PROTECTION PROBLEM?

Underground piping must be protected against destructive forces of corrosive soils and electrolytic conditions. Normally, coal tar coating as called for in AWWA specifications C-203 and C-204 would be hot-applied at a coating mill. However, there are times when the volume of pipe involved or the distance of a coating mill make this impractical from a time and cost standpoint.

You'll find the ANSWER with TAPECOAT® . . . the Quality Coal Tar Coating in Tape Form

TAPECOAT is the widely-accepted alternate material that is equivalent to mill-applied hot coal tar protection. With this easy-to-use material, protection can be applied in the field by your own men, because technical know-how, kettles and special crews are not required. You save time and money while providing the long-life protection called for.

TAPECOAT is easily applied, using a torch to soften or bleed the pitch which gives both bond and protection. Available in widths from 2″ to 24″, it is spirally wrapped or cigarette wrapped around pipe, pipe joints, couplings, conduit, cable, and insulated piping.



Write for illustrated brochure.

The TAPECOAT® *Company*

Originators of Coal Tar Coating in Tape Form

1551 Lyons Street
Evanston, Illinois

New advantages for truck owners introduced in all-new Dodge Power Giants for '58

Power, payload, economy and styling features make Dodge 4-way leaders of low-priced 3

Recent introduction of the new '58 Dodge *Power Giants* brings truck owners a series of the most outstanding advances in Dodge truck's 40-year history.

In power, for instance, Dodge offers three new *Power Giant* V-8's that provide up to 234 hp. . . . as much as 24% more than other low-priced makes. These extra-powered engines can take it easy under normal loads . . . keep going longer, too.

Payload capacities are up to an all-time high. Chassis construction features the elimination of excess weight while actually increasing strength. You get as much as ⅓ more payload capacity.

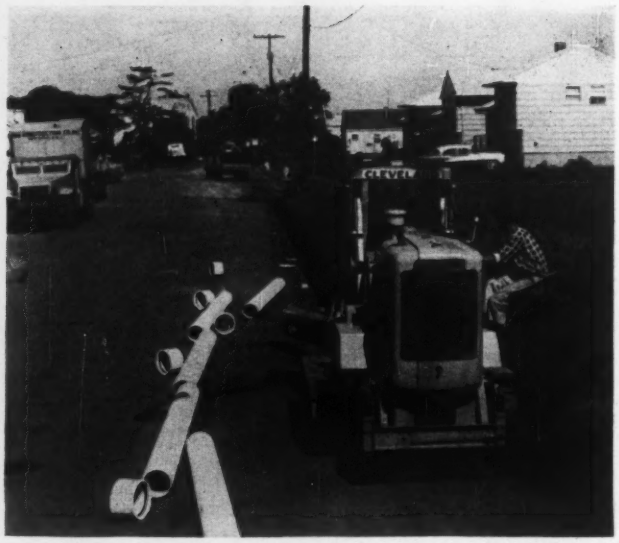
When it comes to economy, Dodge sweeps the field because of its exclusive Power-Dome V-8 engine design that reduces harmful carbon deposits. This improves gas mileage . . . practically eliminates the need for major engine overhauls.

Dodge styling gives truck owners a real prestige bonus. Striking dual headlights, massive new grilles and luxury cabs are exceptional highlights.

All in all, truck owners would be well advised to check into the '58 *Power Giant* line-up before replacing or adding units. These Dodge trucks are definitely four-way leaders of the low-priced three.

DODGE *PowerGiants*

Trench digging with Cleveland cuts repaving costs 25%



ERN CONSTRUCTION CO's new Cleveland 110 Trencher cut repaving costs 25% on the installation of 11,000 feet of 12 and 8 inch pipe throughout East Brunswick Township near Springfield, New Jersey. Trench was 5½ feet deep and 24 inches wide. Foreman Henry Appleby says:

> **"We're able to reduce repaving costs 25% with the Cleveland because it cuts cleaner, narrower trench than the backhoe method we used previously."**

"We get better production, too," says Appleby. "The Cleveland digs about 780 feet of trench per hour compared to about 100 to 150 feet with the backhoe."

Good Everywhere ®

The CLEVELAND TRENCHER Co.

20100 St. Clair Avenue • Cleveland 17, Ohio

Ditcher Model Expands Firm's Line

Barber-Greene's vertical boom, crawler-mounted ditcher permits a maximum digging depth of 7 ft and bucket widths of 19, 21, and 24 in. Width variation is achieved by varying the position of the buckets or adding teeth.

Among the features of the Model 784 is "Hydra-Crowd"—hydraulic crowding speed transmission—which provides variable forward crowding speeds ranging from 0 to 31 ft per minute and a reverse speed of 15 ft per minute. Barber-Greene Co., 400 N. Highland Ave., Aurora, Ill.

Heavy-Duty Grader Added to Galion Line

Just added to the company's line of grading equipment is the Galion extra heavy-duty Model 160.

Powered by a six-cylinder, 160 hp diesel engine, the new grader has a total weight of 30,020 lb with scarifier. The high-arched, box-type, single-member frame is said to be extra strong, weighing 134 lb per ft.

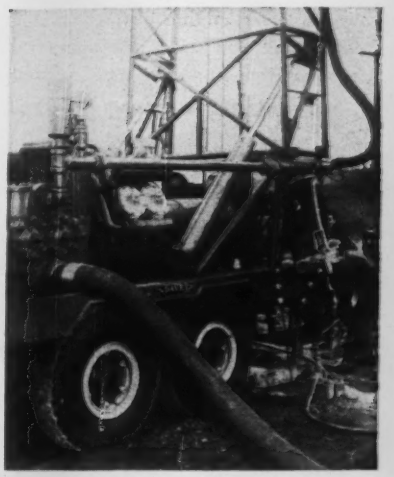
The new model has a constant mesh transmission, with six overlapping forward speeds varying from 1.3 to 22.6 mph, and high and low reverse speeds. Listed as standard equipment are a 13 ft x 29 in. x ¾ in. hydraulic shiftable moldboard, combination hand and hydraulic booster steering, 14.00 x 24 ten-ply tires on both front and rear wheels, and four-wheel brakes. Galion Iron Works & Mfg. Co., Galion, Ohio.

Capacity of Hydrocrane Is Boosted to 12 Tons

The capacity of the H-5 Hydrocrane has been boosted to 12 tons, the manufacturers announce. The H-5, which mounts on a standard low-cost truck, formerly was rated at 10 tons.

Hydraulic horsepower has been increased by about one-third by means of an additional hydraulic circuit—giving the H-5 a total of three independent circuits.

According to the manufacturers, addition of the third hydraulic unit provides faster coordination of crane movements while maintaining precision control. In addition, a new 12 volt electrical system has been provided to insure better starts. Bucyrus-Erie Co., South Milwaukee, Wis.

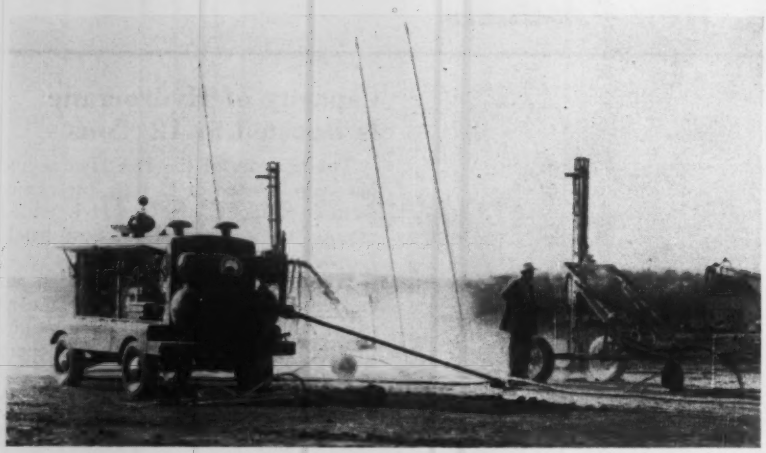


Rotary Drill Furnishes Truck-Mounted Versatility

A truck-mounted rotary drill for air or mud drilling in both rock and sedimentary formations is on the market now.

Known as the Model M-7WA, it is said to be suitable for gas, oil and water well drilling to depths exceeding 3,500 ft with 2⅞ in. pipe and over 2,500 ft with 3½ in. pipe. In addition, it can be employed for all types of exploratory and core work in the mining and construction industries.

An open faced jack-knife mast facilitates the use of extra wide breakout tongs and permits setting casings of up to 30 in. without moving the rig, say the manufacturers. Rotary Drill Div., Davey Compressor Co., Kent, Ohio.



Only Jaeger delivers 600 cfm at 1650 rpm

Although powered with the same GM 6-71 diesel engine as the Jaeger "600", other compressors run 150 rpm faster to produce the same 600 cfm of air. In 8 hours' continuous operation a Jaeger averages 72,000 fewer revolutions, saves miles of engine piston travel and many pounds of fuel. Jaeger "125", "250" and "365" sizes are comparably efficient. See your Jaeger distributor for complete cost-saving data, or request Catalog JC-7.

THE JAEGER MACHINE CO., 200 Dublin Ave., Columbus 16, Ohio

BLOCKS AND FORGINGS SINCE 1889

SKOOKUM BLOCKS FOR ALL TYPES OF CONSTRUCTION JOBS . . .

Hoisting Blocks

No. 2216T Loading

No. 264 Hex Head Pin

No. 263 Eyed Pin

Bronze-bushed and Timken-bearing blocks with Hadfield manganese or cast steel sheaves, stressproof steel sheave pins, forged alloy steel yokes and draw pins, cast annealed steel sides. Built to 5-to-1 safety factor to assure safe operation.

Skookum screw pin shackles, Nos. 263 and 264, with hex head or eyed pin, forged from alloy steel, heat treated, machined for true fit. Any size.

SKOOKUM BUILDS ANYTHING IN BLOCKS, FAIRLEADS OR FORGINGS

The SKOOKUM-CO., Inc.

8524 N. CRAWFORD, PORTLAND, OREGON U.S.A. • 647 TERMINAL AVE., VANCOUVER, B. C. CANADA

Publications

Pumps—Bulletin 726.2 describing heavy duty vertical centrifugal sump and process pumps is available. In 12 pages it covers single and duplex units, and dry types for pit depths up to 20 ft, capacities to 1,080 gpm and heads to 290 ft. Specifications, sectional views, performance ratings and a chart of materials of construction for interchangeability are included. GOULDS PUMPS, INC., 40 BLACK BROOK ROAD, SENECA FALLS, N. Y.

Tractors—New design in Allis-Chalmers HD-21 turbocharged diesel powered tractors are described in a 16 page catalog, MS-1243. New features are photographed and illustrated and tractor specifications are included. CONSTRUCTION MACHINERY DIV., ALLIS-CHALMERS MANUFACTURING CO., MILWAUKEE, WIS.

Paving machine—A catalog emphasizing the versatility of operation of the Koehring 16-E rubber-tired paver is available. The publication includes photos and illustrations as well as a table of comparative production figures for a 16-E and a 27-E paver. KOEHRING DIV., 3026 W. CONCORDIA AVE., MILWAUKEE, WIS.

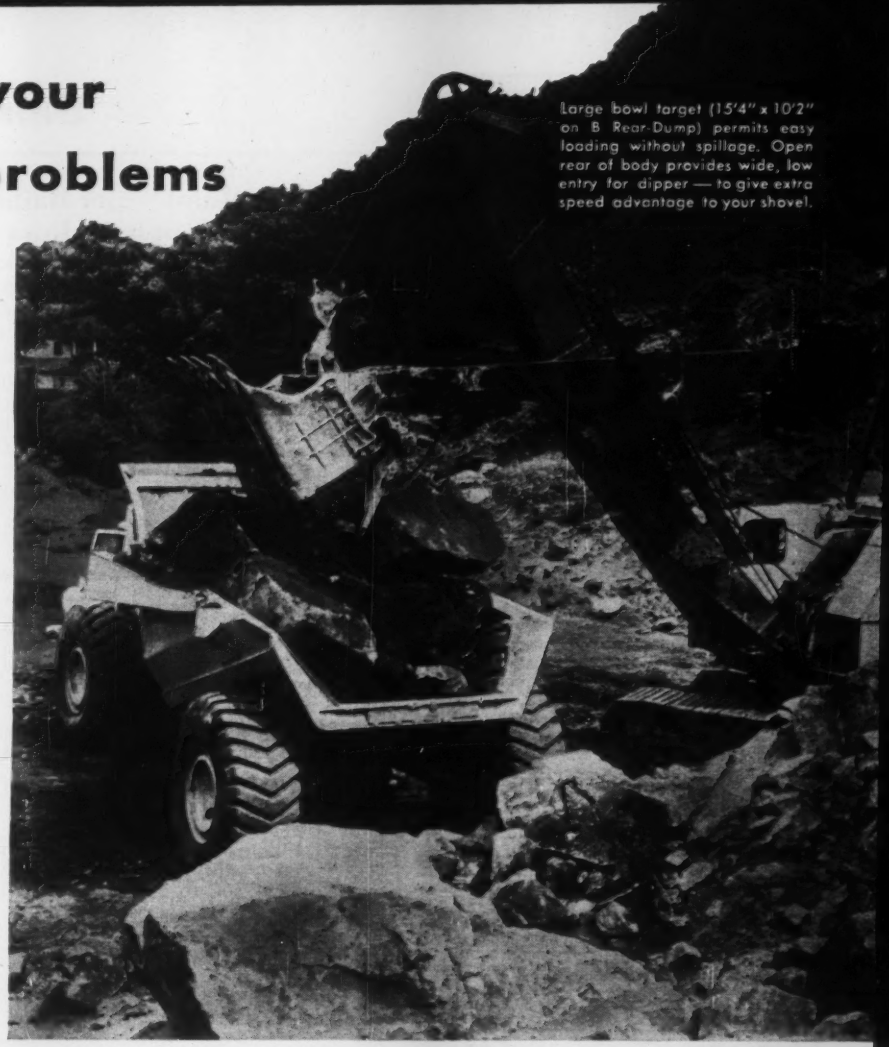
Construction equipment—A 40 page brochure presents a history of the Koehring Co., its divisions and subsidiaries. KOEHRING CO., 3026 W. CONCORDIA AVE., MILWAUKEE 16, WIS.

Scrapers—A 24 page catalog features the Model TS-24 Euclid Twin Scraper. The booklet, Form 554, graphically illustrates design features, and discusses operation and performance of this 24 yd scraper. EUCLID DIV., GENERAL MOTORS CORP., CLEVELAND 17, OHIO. . .

Clamshells—Bulletin A-266 is a two-color illustrated specification sheet describing this company's line of clamshell buckets. SCHIELD BANTAM CO., WAVERLY, IOWA.

Highway railing—New highway railing designs, complete with technical information, are compiled in a booklet called "Alcoa Aluminum High Railings". Sections deal with construction specifications and lists of materials. Engineering and architectural considerations are briefed and photographs of installation are included. The booklet also has a reference list of Alcoa railing jobber erectors for every section of the country. ALUMINUM CO. OF AMERICA, ROOM 727, ALCOA BUILDING, PITTSBURGH 19, PA.

How to solve your rock-hauling problems at low cost



Large bowl target (15'4" x 10'2" on B Rear-Dump) permits easy loading without spillage. Open rear of body provides wide, low entry for dipper — to give extra speed advantage to your shovel.

With today's highway specs calling for *straight, level* right-of-ways, earthmoving contractors are often faced with the problem of removing large rock formations. With LeTourneau-Westinghouse Tournapull® Rear-Dumps, you can maintain job efficiency and still keep equipment inventory at a minimum.

These high-production L-W haulers offer plenty of power, traction and maneuverability for toughest off-road earthmoving. What's more, you have the economy advantage of being able to interchange scraper, flat-bed, crane, etc., for Rear-Dump unit — behind same prime-mover.

Check the following Tournapull Rear-Dump features. They can help solve your rock-hauling problems . . . and increase profits!

Hauls anywhere — Big single, *load-rated* tires let Rear-Dumps easily haul cross-country — over roughest terrain, through muck and soft fills. Unit also travels job-to-job under its own power, over paved highways or city streets. Tires do not damage paving, RR tracks, etc.

Speeds loading — Wide bowl, with low rear entry, makes loading easier, faster. Permits quick bucket swing-out, while dipper-door is still open. And because of large target area, spillage is greatly reduced. Production delay for clean-up around shovel is minimized.

Dumps fast, clean — Just the flick of dashboard switch instantly activates point-of-action electric hoist motor. Body raises quickly to desired angle. At full dump position, edge of bowl is low behind rear wheels . . . so material cannot roll forward to lodge against wheels, nor pile under rear end. Smooth body sheds stickiest material readily.

Resists body shock, damage — Slanting walls of all-steel body, plus heavy 3-layer bottom, beat shock-load problems. Heaviest materials deflect off sloping sides . . . quickly build up a shock-cushion in bottom. Reinforced bowl floor on C Rear-Dump — for example — consists of 1½" steel billets, between ½" steel bottom and a ¾" steel plate facing.

Short 180° turns — Rear-Dump makes continuous 180° turn in space less than hauler's own length. In dump position, it turns in only about ⅔ of overall length! This unusual maneuverability of L-W Rear-Dumps allows you to work in tight quarters where smaller conventional haulers often cannot go.

Front-wheel drive Tournapull hauler dumps load clean over bank edge, eliminating dozer clean-up. Pulls out with front wheels on solid footing. Can also "hump" out of soft footing without wheel spin — by dump action plus alternate braking of front and rear wheels.

For complete information

Why not see how you, too, can increase production, lower hauling costs with L-W Tournapull Rear-Dumps? Call or write for complete information on price, delivery, and the bonus interchangeability features. 3 sizes: 11, 22 or 35 tons.

R-1448-DC-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

"THIS LUBRICANT MEETS OUR REQUIREMENTS FOR SUB-ZERO TEMPERATURES"

Says- TUCKER SNO-CAT CORP.

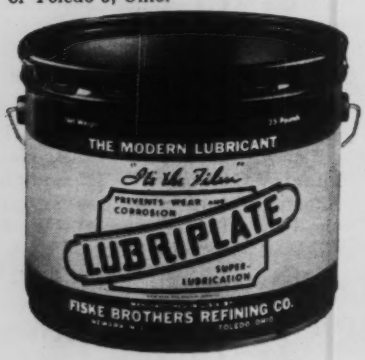
"We are proud to state that there are over 50 SNO-CATS satisfactorily operating in the Antarctic in temperatures as low as minus 60 degrees. This seems to us the ultimate in extreme tests for both SNO-CATS and LUBRIPLATE LOW-TEMP Lubricant on which SNO-CATS depend for their consistently outstanding and reliable performance."

J. M. Tucker, General Manager

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose . . . LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



Unit Prices

Tank, Well and Water Mains For Water Supply in Iowa

Four contracts totaling $34,281 let by the city of Meservey, Ia. for extensions to its water supply system include a 50,000 gal elevated tank, a 500 ft deep 10 in. dia well and water mains. The 100 ft high tank, including foundation, was low bid at $26,156, which averages 52.3¢ per gal of capacity. The 10 in. well contract cost averages $12.60 per lin ft.

Rowat-Murray, Belmond, Ia., are the engineers.

	Amount	% of Total
L. C. Howe—Sect. I Elevated tank foundations	$1,856	5.4
Pittsburgh-Des Moines Steel Co.—Sect. II.—Water tank	24,300	70.9
Thorpe Well Co.—Sect. III	6,302	18.4
Alex Wunsch—Sect. IV Water main extensions	1,823	5.3
Total awards	$34,281	

The contractors furnish all materials. Rail and truck transportation are available.

Class A concrete for foundations is specified 3,500 psi. Cast iron pipe is Class 150.

Wages on the water main extension range from $60 to $70 a week, on an annual basis.

This is how the bidding went:

Sect. I—Elevated Tank Foundations

1C L. C. Howe, Marion, Ia	$1,856
2 Dorenkamp, Meservey, Ia	2,125
3 Zook Constr Co., Belmond, Ia	2,566

Bids 9-30-57 Items	Unit	Quantity	Unit Prices 1C	2
Concrete foundation incl exc, bkfl, reinf stl and forms	cy	27	$58.00	$63.00
Valve MH	ea	1	290.00	423.75

Sect. II—50,000 Gallon Elevated Tank

1C Pittsburgh-Des Moines Steel Co., Des Moines, Ia	$24,300
2 Chicago Bridge Co., Chicago, Ill	25,370

Bids: 9-30-57 Items	Unit	Quantity	Unit Prices 1C	2
Water tank and 100' tower, incl anchor bolts—erect and paint	ls	job	$24,300	$25,370

Sect. III—Well, 500 ft. Deep, 10 in. dia.

1C Thorpe Well Co., Des Moines, Ia	$6,302
2 Layne Western, Ames, Ia	6,593
5 Sundberg Pump Co., Audubon, Ia	6,972

Bids: 9-30-57 Items	Unit	Quantity	Unit Prices 1C	2
Equipment, set up and remove	ls	job	$280.00	$250.00
Drilling to depth of 20'	lf	20	10.00	10.00
20' to 100'	lf	80	8.90	9.00
100' to 240'	lf	140	8.40	8.00
open hole, 10"ϕ, 240' to 500'	lf	260	6.90	7.00
Pressure grt cementing unit and grtg shoe, set up and remove	ls	job	150.00	400.00
Stl well casing, 10" ID 0.365", from 2' above surf to 240' below	lf	242	4.90	4.50
Grt, neat cement	sacks	300	1.90	2.00

Bids: 9-30-57 Items	Unit	Quantity	Unit Prices 1C	2
Test pump, instal and remove	ls	job	90.00	250.00
operate	hr	12	12.00	12.00

Sect. IV—Water Main Extensions

1C Alex Wunsch, Greene, Ia	$1,823
2 Kenseth Plumbing & Heating, Belmond, Ia	*2,040
3 Sundberg Pump Co., Audubon, Ia	2,925

Bids: 9-30-57 Items	Unit	Quantity	Unit Prices 1C	3
CI watermain, 4"ϕ	lf	850	$2.28	$3.85
Valves, 4"	ea	2	85.00	110.00
Fittings, tees, bends, etc	lb	450	0.38	0.45

* Lump sum bid

Ledge Rock Removal from N. Y.-N. J. Ship Channel

On a $1,355,000 contract, 21.5% above the estimate of the U. S. Army Engineers, District of New York, The Arundel Corp., Brooklyn, N. Y., the low of two bidders, will remove ledge rock and other material to widen and deepen New York-New Jersey navigation channel in the Arthur Kill near Pralls Island.

Under the terms of new wage contracts just signed, wages paid on this job include:

Dipper dredge operators, $3.175; cranesmen, $3.05; engineers, $3.175; maintenance engineers, $2.95; deck hands, $2.14; firemen and oilers, $2.29; scowmen, $2.09, all including fringe benefits.

1C The Arundel Corp., Brooklyn, NY	$1,355,000
2 Great Lakes Dredge & Dock Co., NYC	1,445,273
EE U. S. Army Engineer, District of New York	1,114,666

Bids: 10-1-57 Items	Unit	Quantity	Unit Prices 1C	2
Remove ledge rock	cy	151,400	$8.00	$8.62
other material	cy	71,900	2.00	1.95

Completion: 200 cal/days
Liquidated damages $100/day

Off-Site Utility System for Homestead AFB Housing

Cost of off-site utility system, roadways, sidewalks, pumping station, drainage structures and grading for 1,255 housing units at Homestead Air Force Base, Fla., will average $341.24 per unit. This covers furnishing all plant, labor, equipment, appliances and materials.

The Brewer Co. of Florida, Inc., Miami, Fla. has this $428,285 contract, which is to be completed within 240 calendar days after receipt of notice to proceed.

Norman M. Giller, Associates, Miami, are the engineers.

Wages on the job include: Carpenters, $3.05; electricians, $3.40; tractor operators, including bulldozers, $2.10; Truck drivers, $1.25; common labor, $1.35.

Build section of Albuquerque to Grand Canyon road in blow-sand and pulverized sandrock

One of two 150 hp Adams 660 graders worked by Haumont Contracting Co. on 11.5-mile section of new road to Grand Canyon area. In loose sand footing, "660" blades side bank, brings ditch-line material out for easier loading by big B Tournapulls.

According to contractor Pierre H. (Pete) Haumont, Jr., and Dept. of Interior engineers, the material available for building a road thru Navajo Indian Reservation near Tuba City, Arizona, was extremely tough to work in . . . worse than slippery mud. Haumont Contracting Co., Phoenix, Arizona, handled the dirtmoving and grading with two LeTourneau-Westinghouse 25-yd. B Tournapulls® and two 150 hp Adams* 660 graders — plus tractors for ripping, push-loading, and pulling sheepsfoot rollers.

Contractor built an 11.5-mile section of 30′ road, part of a new highway that will eventually carry tourists from Albuquerque, N.M., to the Grand Canyon area. Haumont's contract included dirtmoving, grading, culverts, and a 24′ mat surface.

Rip, crush, haul and spread material

In a typical cut and fill operation, big B Tournapulls first stripped shifting blow-sand. Then rippers rooted up the undersurface sandrock . . . sheepsfoot rollers broke it up . . . and Tournapulls loaded and hauled the pulverized sandrock to the fill. According to contractor's production records, for a 4-week period, each B Tournapull averaged 1500 cu. yds. per 9-hr. day.

"660" works steadily in unstable footing

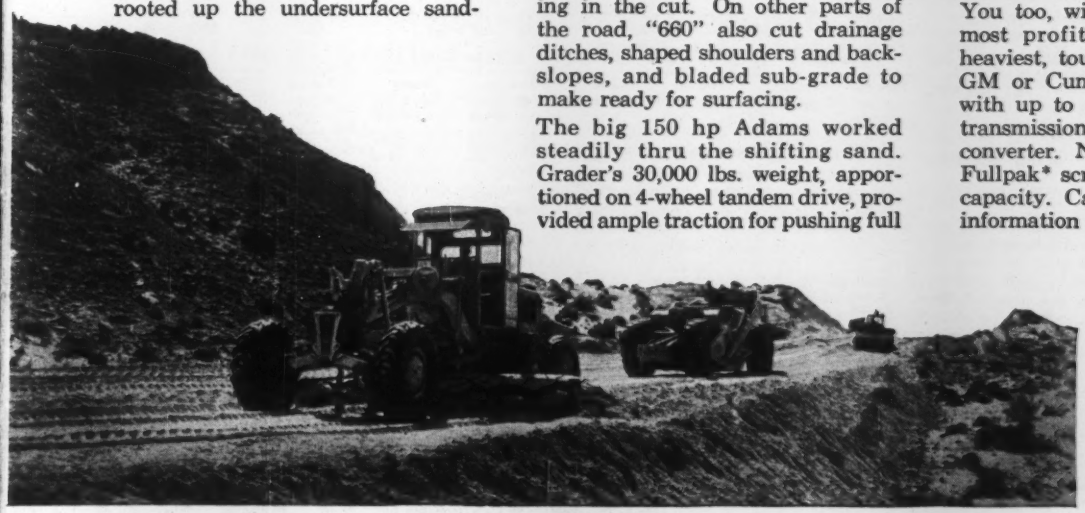
Photos show one of the Adams 660's as it worked in a cut and adjoining fill. In an average 72-hour work week, grader spread and smoothed approx. 15,000 cu. yds. of fill, maintained haul surfaces for fast Tournapull travel, sloped side-banks and bladed-up material for easier loading in the cut. On other parts of the road, "660" also cut drainage ditches, shaped shoulders and backslopes, and bladed sub-grade to make ready for surfacing.

The big 150 hp Adams worked steadily thru the shifting sand. Grader's 30,000 lbs. weight, apportioned on 4-wheel tandem drive, provided ample traction for pushing full blade-loads in 3rd gear. Its 6 big, wide tires easily climbed over loose sand . . . applied grader's full push-power without spinning or sinking in.

"No other grader could do this job"

Owner Haumont comments, "We are tickled to death with the performance of our '660's' and Tournapulls. These '660's' are doing a real job in this sand." Says operator Jerry Edge, "No other grader could do this job. The Adams is heavy and has extra power. When you set into something, you know '660' won't let you down. She does twice the work of ordinary 115 hp graders."

You too, will find Adams 660 the most profitable grader for your heaviest, toughest work. Choice of GM or Cummins engines, 150 hp, with up to 15-speed conventional transmission; or 190 hp with torque converter. New B Tournapull with Fullpak* scraper has 27-yd. heaped capacity. Call or write for complete information and a demonstration.



On new section of Albuquerque to Grand Canyon road thru Navajo Indian Reservation, near Tuba City, Ariz., "660" spreads pulverized sandrock — 15,000 cu. yds. per week — pushes full blade-load in 3rd gear, up to 4.7 mph.

*Trademark BPG-1516-DCJ-1

LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Iron and Steel Products: Last, Jan. 16; Next, Feb. 13
- Wood Products, Glass, Explosives, Chemicals: Last, Jan. 23; Next, Feb. 20
- Clay Products, Lime, Plaster, Paint Roofing: Last, Jan. 30; Next, Feb. 27
- Wage Rates, Building Board, Lath, Insulation: Last, Jan. 30; Next, Feb. 27

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 del. 50 cy & over
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.35am	$3.94am	$3.60m	$2.28	$2.28	$2.50‡	$2.18	$2.33	$1.55	$1.65	$0.175	$ .21	$14.50g
Baltimore	4.45a	4.05a	3.52a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18a	.18a	13.30/13.80
Birmingham	4.23	3.30f	....	2.53n	2.53n	2.13n	2.75	2.75	1.55	1.65	.18	.18	12.55
Boston	5.80ei	4.74a	4.79e	3.00am	3.00am	3.00am	1.75am	1.85am	....	....	.23	.275a	15.00k
Chicago	4.13ag	3.87a	3.90/3.95	3.78‡b	3.78‡b	4.13‡b	3.95‡b	3.95‡b	2.25‡	2.25‡	.25	.25b	14.00p
Cincinnati	4.46c	4.05c	4.03c	2.29‡c	2.34‡c	2.34‡c	2.64‡c	2.64‡c	1.89	1.89	.19	.24a	13.25
Cleveland	N.A. in C.L.	....	3.88c	2.25ef	2.10f	1.75	4.50‡a	4.50‡a	3.45‡a	3.45‡a	....	.20	16.15
Dallas	3.55a	3.15a	3.43	2.60	2.65	1.90	2.43	2.63	....	....	....	.27	12.00
Denver	4.79a	4.29a	4.79	1.90	2.05	1.20	....	....	....	....	.22	.345a	10.70
Detroit	4.10a	3.60ag	3.73ag	4.50‡b	4.50‡b	4.25‡b	3.75‡	3.75‡	3.50‡	3.50‡	.23	.24a	14.20
Kansas City	4.25aR	3.81aR	3.98aR	....	....	1.70‡a	2.00‡a	2.00‡a	....	....	.22a	.26c	13.25
Los Angeles	5.12ek	4.68ek	5.60	2.56‡a	2.76‡a	2.41‡a	2.41‡a	2.46‡a	....	....	.14/m	.24m	12.96h
Minneapolis	4.44a	4.04a	4.10a	2.70‡ag	2.70‡ag	1.60‡ag	3.75‡ag	3.75‡ag	....	....	.19	....	14.30f
Montreal	3.21d	2.96d	3.60	1.90‡a	2.15‡a	2.25‡a	1.90‡s	2.15‡s	2.00	2.00	.20	.20a	10.80ek
New Orleans	3.75a	3.45a	3.70	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	13.65
New York	4.83a	4.42a	3.72	3.20bk	3.20bk	2.30bk	3.10bl	3.10bl	....	....	.250n	.276b	17.40an
Philadelphia	4.57‡a	4.16‡a	3.61‡	2.85‡a	2.85‡a	2.35‡a	2.70‡	2.80‡	2.00	2.35	.25/.32	....	14.15do
Pittsburgh	5.65bjk	4.62bj	5.00bjl	2.60aq	2.60aq	3.00aq	2.00e	2.00e	2.20	2.20	.26	.28	15.80
St. Louis	4.16/4.48c	3.76/4.08c	3.86/4.18	3.25am	3.10am	2.40/3.10am	1.65j	1.75j	....	....	.24	.30e	12.65/13.15
San Francisco	4.09c	3.69c	4.53c	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28el	12.75c
Seattle	4.27a	3.75a	4.45a	4.25‡bm	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm	....	....	.26	.37c	13.90y
Toronto	4.03a	4.03a	4.03a	2.40‡	2.40‡	2.05‡	2.20	2.20	2.20	2.20	.26	.275e	15.25

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots *f Fob mill, add 14.58 to $21.31 per car switching charges *g fob mill + freight *h LCL. *i Less 2% disc, 10 days *j Truck lots, fob yard *k 100 bag lots *l over 150 sacks *m Incl. 4¢ Ga. frt. increase *R revised, new price F.o.b. mill, old price delivered

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *q fob yard

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 8¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *i F.o.b. plant San Rafael. *m F.o.b. yard. *n 8 x 8 x 18.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more. *c 10–100 cy. brackets. *d 1–3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 1-mi zone. *p Heating charge 50¢

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 15¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.30†	Buffington, Ind	$3.40†	Steelton, Minn	$3.45†	Muskegon, Mich	$3.30†	Toledo, O	$3.30†
Clinchfield, Ga	3.45†	Independence, Kan	3.25†	Leeds, Ala	3.30†	Saginaw, Mich	3.30†	Milwaukee, Wis	3.50†
Kingsport, Tenn	3.45†	Hannibal, Mo	3.35†	Duluth, Minn	3.45†	Wyandotte, Mich	3.30†	Green Bay, Wis	3.35†
West Des Moines, Iowa	3.50†	Northampton, Pa	3.35†	Hudson, N. Y	3.35†	Buffalo, N. Y	3.55†	Ironton, O	3.35†
Nazareth, Pa	3.35†	Universal, Pa	3.60†	Alpena, Mich	3.20†	Oswego, N. Y	3.45†	Montreal City	2.50†
Bath, Pa	3.35†	Waco, Tex. (+ 10¢ tax)	3.35†	Detroit, Mich	3.45†	Cleveland, O	3.35†	W. Winfield, Pa	3.60†
Lesley, Pa	3.35†	Giant, S. C	3.45†	Howes Cave, N. Y	3.35†	Alsen, N. Y	3.35†	Security, Md	3.35†

† *Prices to hold for first quarter of* 1958.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT		ASPHALT BINDERS—FLUXES		CUTBACK ASPHALT MC		ROAD OIL	ASPHALT EMULSION RSI	
	Granite Per M lots of 80,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Per ton, less than 80 penetration		Per gal., 80–300 penetration		per ton		Per gal.	Per gal.	
				Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	.....	.....	.....	$30.50	$45.00	$0.15	$0.26	$0.125Pw	$0.28Pw	$0.14	$0.125	$0.30
Baltimore	180.00‡	.....	.....	23.00i	.....	.095i	0.185i	.10iwE	.19iwE	.10i	.106i	0.195i
Birmingham	.....	62.00i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.00ap	46.00ap	.24a	.46a	.11aFw	.24aFw	.11ao	.174aGo	.35aGo
Chicago	180.00‡	90.00‡b	3.95/4.00‡j	24.25b	34.25b	21.40bv	31.40bv	.11bwH	.19bwH	.085b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	89.50d	6.30g	26.50A	.....	26.50Av	.....	.1180AwF	.....	.....	.1180AG	.21AG
Dallas	s	40/63	s	26.35	45.39	.1116	.1944	29.85	51.40	.1080	.1116	.1944
Denver	.....	58.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	113.00	.....	29.65	.....	29.65v	.....	12.85l	.....	.1026	.....	.25
Kansas City	s	s	s	20.40cl	.....	20.40v	.....	.0925cwJ	.....	.0825z	0.125z	.....
Los Angeles	s	.....	s	22.50dms	.....	22.50dvz	.....	24.00dz K	.....	23.0 vlo	.1038j	.2038j
Minneapolis	.....	.....	3.73h	26.50	.....	29.50v	.....	0.115w		0.105	.134	.....
Montreal	s	s	s	32.50n	44.80n	.176n	.226n	18.70nwE	23.70nwE	.154n	.242nz	.27nz
New Orleans	.....	.....	.....	20.00v	.....o	20.00v	.....o	.095vw	.....o	.085B	.095BL	.....
New York	.....	.....	3.70f	25.99m	47.94m	25.99wt	47.94wt	11.61wF	21.01wF	.....	11 63u	21 11u
Philadelphia	175/185	110/120	4.08	24.00	.....	24.00	.....	.11wF	.....	.105	.....	.....
Pittsburgh	60.00k	99.12in	6.35	32.40i	.....	32.40iv	.....	.1411i	.....	.14‡	.1411i	.....
St. Louis	.....	.....	.....	22.90f	.....	.1825	.....	.1035foE	.....	0.165	.825	.....
San Francisco	.....	70.00e	.....	24.50g	41.50g	24.50ghv	41.50ghv	25.50gN	43.00gN	25.25eg	25.50hy	.2063y
Seattle	.....	.....	.....	27.00x	42.00A	27.50x	.....	28.50K	.....	26.25Av	25 50hv	46.10hrv
Toronto	.....	125.50	4.50f	40.10	59.38	0.2005	0.2445	0.214w	0.258w	0.198	0.216	.271

‡ Delivered.

PAVING BRICK & BLOCK: *b 3 x 3½ x 8. *c 2½ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 5# treat. *g 3" *h 2" tr, 5# *i 3 x 3½ x 8½. *j 2½", 8 lb. tr. *k Used. *l Redshale; *m Pine; oak $8.57. *n Truck del.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Wood River, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50–110 penetr. *l Less than 100 penetr. *m 40/300 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 150/300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland. *z F.o.b. Edmonds. *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS, SS. *H RC 0-5 incl. *I MC 4. *J MC, RC $0.095 *K MC 3, 4 & 5. *L MS. *M MC 1-5, RC 1-5, $0.106. N MC 3. *O Truckload. *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums. *Q F.o.b. Eldorado, ARK.

How to earn spare-time profits with your dirtmoving tractor

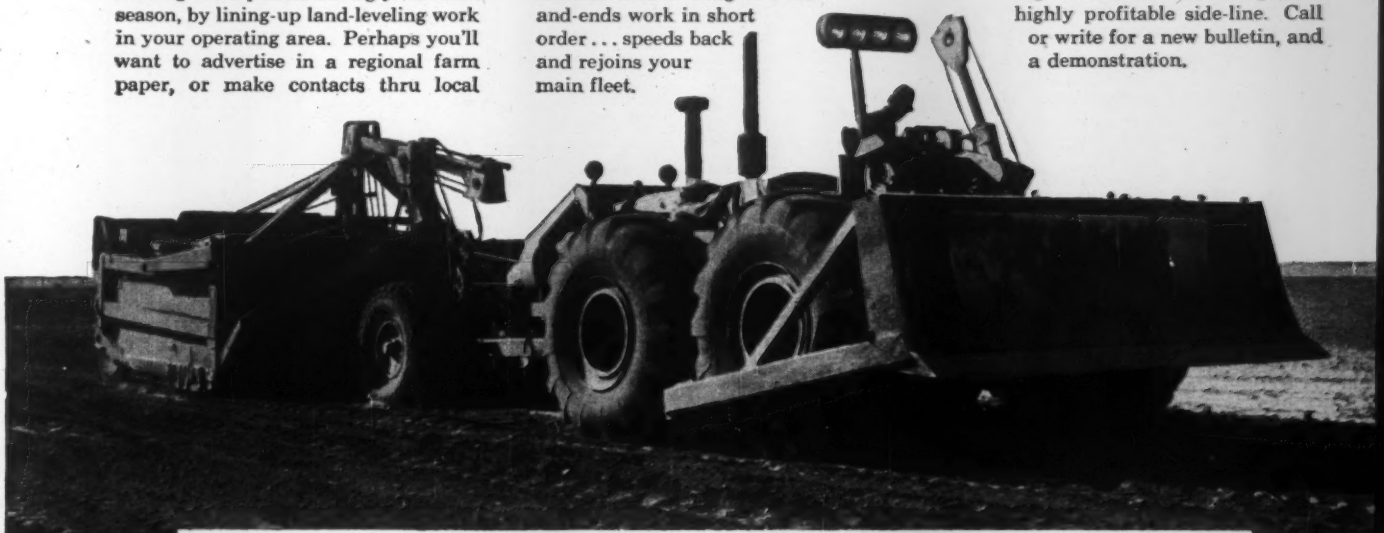
Maybe there's a profit angle for you in the irrigated ranch job-story illustrated here. This is the point: There are lots of agricultural land-leveling jobs to be done. And most ranchers and farmers prefer to contract their dirtmoving work. Are you getting your share of this desirable fill-in business?

With a mobile, high-speed tractor, you can keep your equipment investment earning extra profits during your slack season, by lining-up land-leveling work in your operating area. Perhaps you'll want to advertise in a regional farm paper, or make contacts thru local Soil Conservation Agents. Then, when your regular dirtmoving work is caught up, or you're idled for some reason, you can dispatch your dozer and a towed scraper to handle this grading.

LeTourneau-Westinghouse Tournatractor® wastes little production-time in moving job-to-job. Your operator just hops on this speedy, rubber-tired dirtmover . . . drives to work over streets, highways or cross-country . . . handles land-leveling or odds and-ends work in short order . . . speeds back and rejoins your main fleet.

Tournatractor is a fast worker, too . . . has more push- or pull-power than comparable crawlers at speeds over 2 mph. It'll handle your dozing, clearing, push-loading . . . operate a scraper, pull compaction rollers, etc. And it's equally as efficient on steady production work, as it is on work-and-run assignments.

Check into this high-speed, 210 hp Tournatractor for your heavy dirtmoving — with land-leveling as a highly profitable side-line. Call or write for a new bulletin, and a demonstration.



Towing cable-operated scraper, Tournatractor spreads thin layer of clay and sand, grades 36-acre plot to 2" fall in 100', on 2720-acre Langenegger ranch, near Hagerman, N. M.

How Langenegger Bros. handle land-leveling on New Mexico ranch

Photo shows Tournatractor on one of 6 farms that make up the 2720-acre Langenegger Bros. ranch near Hagerman, N. M. Here, towing a 12-yard scraper, Tournatractor regraded a 36-acre plot to specifications worked out with the local Soil Conservation Agent. This half-day's work involved accurate cuts up to 1' depth, and precise spreads to a total depth of 8".

On a typical 4½-minute cycle, operator took a thin cut, self-loading about 8 pay-yards over 249'. He hauled 332', spread over 148', and returned 962'. Tournatractor compacted fill during regular travel, overlapping tire tracks for best results. Unit also graded the fill with scraper blade on the return.

"I like the extremely high production of my Tournatractor," says Bill Langenegger. "It's comfortable and easy to operate, maintenance costs have been low. This dirtmover is really dependable, tops in overall economy."

Floyd Lard, operator, reports, "I broke in this Tournatractor in '53, when it was brand new. I still like it. We can do just about anything. We often move 15 miles or more from one farm to another. Why, I can ride this outfit and be on a job and have it done, before a crawler could even be loaded for the move."

CT-1520-DCJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **Mass., Weymouth**—FIRE ALARM SYS., IMPRVS.—BA 2/19—Dist. P. Wks. Office, IND, 495 Summer St., Boston, Zone 10, repairs and imprvs. to Station Fire Alarm sys., Naval Air Station, South Weymouth, NBy-16498, Spec. No. 16498/57. CD 9/13/51.

† **N. H., Portsmouth**—QUAY WALLS, etc.—BA 3/4—Dist. P. Wks. Office, IND, Bldg. 37, 495 Sumer St., Boston 10, Mass., repairs to quay walls, berths 1, 2 and 3 Portsmouth Naval Shipyard, NBy 14328, Spec. 14328/57.

† **Mass., Chicopee Falls**—AIRCRAFT FACILITIES—BA 3/11—U. S. Eng., 150 Causeway St., Boston, aircraft fueling facilities, Westover Air Force Base, ENG-016-58-77. $600,000-$650,000. Plans deposit $10. CD 1/22.

BUILDINGS—SLC

R. I., Providence—MANUFACTURING—Coro Co., 167 Point St., soon lets contract mfg. bldg. addn. Point St. $450,000. Barker & Turoff, 335 Angell St., archts.

HEAVY CONSTRUCTION—LB & CA

C. DiBiase Co., Inc., 551 Congress St., Portland, Me., LB $64,000, est. $55,000, Contract No. 2, 4 m.g. steel standpipe Tank Foundation-Gate House and appurtenances, Essex St., BANGOR, ME. Bd. Trustees, Bangor Water Dist., P. O. Box 804, Bangor, Me. Bids Jan. 20. CD 1/14.

† **George C. Stanley & Sons, Inc.,** 525 Riverside Ave., Burlington, Vt. CA $161,725, repave base roads at Ethan Allen Air Force Base, 1FB 43—600-58-021, WINOOSKI, VT. Headquarters, 14th Fighter Group (Air Defense) U. S. Air Force, Ethan Allen Air Force Base, Winooski, Vt. CD 9/19.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, bids opened 1/21.

Mass.—Constructors, Inc., 421 Mass. Ave., Lexington, Mass., LB $111,906, est. $137,088, widening bridge over Charles River, Rte. 9, F-367(1), Medfield-Millis.

Mass.—Warren Bros. Inc., Main St., Sunderland, Mass., LB $74,654, est. $72,875, bridge over Muddy Brook, Rte. 9, F-29(3), Ware. CD 1/15.

New England Dredge & Dock Co., 60 South Water St., New Haven, Conn., LB $158,010, est. $149,900, dredging mooring basin hydraulically, Massachusetts Maritime Academy, Cape Cod, Bourne, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids Jan. 21. CD 1/13;

Reynolds Bros., Inc., 756 Washington St., Canton, Mass. LB $85,372, est. $83,739, timber bulkhead, harbor excavn., etc., Inner Harbor, Falmouth (Massachusetts).

† **Joseph Perry,** 906 Hathaway Rd., New Bedford, Mass., LB $43,505, est. $83,055, repairs to dike at Long Beach, CIVENG-19-016-58-47, Plymouth, MASSACHUSETTS. U. S. Eng., 150 Causeway St., Boston, Mass. Bids Jan. 17. CD 1/3.

BUILDINGS—LB & CA

▲† **James Farina Corp.,** 53 Bridge St., Newton, Mass., CA $1,125,811, est. $1,204,000, interior constr. SCIENCE LABORATORY BLDG. "C", Cambridge Research Laboratory, Laurence G. Hanscom Field, ENG-19-016-58-48, BEDFORD, MASS. U. S. Eng., 150 Causeway St., Boston, Mass. Bids Jan. 7. CD 1/9, under LB.

George B. H. Macomber Co., 25 Fordham Rd., Allston, Mass., CA Est. $900,000, CLASSROOM and GYMNASIUM BLDG. for Sargent College, 785 Commonwealth Ave., BOSTON, MASS. Boston University, Sargent College, University Admin. Office, 685 Commonwealth Ave., Boston, Mass. Edwin T. Steffian, 11 Beacon St., Boston, Mass., archt. CD 12/16.

▲ **Louis C. Huck, Jr., et al.,** 321 Greenwich Ave., Greenwich, Conn., Owner Builds, $1,730,000, 173 HOUSES, "Fairview Farms", Stanwich Rd., COS COB, CONN. S. E. Minor & Co., Inc., Smith Bldg., Greenwich, Conn., engr.

Ole P. Jensen, Thomas St., Mystic, Conn., CA Approx. $345,000, CHRISTIAN EDUCATION BLDG., classrooms and church office, MYSTIC CONN. Union Baptist Church, High St., Mystic, Conn. Awarded Jan. 21.

▲ **Bonvicini Constr. Co.,** 1500 South Main St., Torrington, Conn., CA $1,010,700, 3 story 72x120 ft. masonry LIBRARY; 56x156 ft. TOWN HALL, Silas Deane Highway, WETHERSFIELD, CONN. Town, Town Hall, Wethersfield, Conn. Bids Jan. 10. CD 1/15, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **Md., Cumberland**—LABORATORY—BA 2/11-Dist. P. Wks., Office, Fifth Naval Dist., Bldg. N-26, U.S. Naval Base, Norfolk, Va., Allegany Ballistics Laboratory Bldg. No. 8 addn., Contract NBy-15166, Spec. No. 15166/57 and Addenda Nos. 1,2,3&4. Bids Jan. 7 rejected. CD 12/17.

▲ **PENNSYLVANIA** — BA 2/25 — Pennsylvania Turnpike Comn., Box 531, Harrisburg.

Somerset Co.—Somerset Maintenance Bldg., on Turnpike. Plans deposit $210. CD 4/27/55.

† **N. Y., Rome**—ELECTRONIC FIELD STATIONS, etc.—BA On Or About 3/4—U. S. Eng., 111 E. 16 St., New York, Zone 3, electronic field stations (FY 1957), receiver bldg., Stockbridge, N. Y., and tramsitter bldg., Ava, N. Y., Griffiss Air Force Base, ENG-30-075-58-84. $700,000-$800,000. CD 9/17.

† **N. Y., Rome** — CENTRAL HEATING PLANT — BA On Or About 3/5 — U. S. Eng., 111 E. 16 St., New York, Zone 3, altering central heating plant, FY 1958 program, Griffiss Air Force Base, ENG-30-075-58-169. $400,000-$600,000. CD 9/17.

BUILDINGS—SLC

N. J., Jersey City—SALES AND SERVICE—Trailmobile, Inc., 31 and Robertson Sts., Cincinnati 9, O., soon lets contract sales and service bldg. $500,000. George Schatz & Assocs., 309 Ludlow Ave., Cincinnati, O., engrs. CD 11/27.

HEAVY CONSTRUCTION—LB & CA

† **Lenry Inc. & William P. Bergan, Inc.,** 122 E. 42 St., New York, N. Y. (Joint venture) LB $94,500, aids to navigation Canada Island to Chimney Point Section, St. Lawrence Seaway, St. Lawrence River, Serial No. CIVENG-30-023-58-24, for St. Lawrence Seaway Development Corp., NEW YORK, U. S. Eng., foot of Bridge St., Buffalo 7, N. Y. Bids Jan. 21 CD 12/2.

† **Walter Balfour & Co. Inc.,** 404 Oakland St., Brooklyn, N. Y., LB $529,400 est. $1,200,000 (6 bidders) replacing cargo doors, Pier Shed No. 2, Brooklyn Army Terminal, Serial No. ENG-30-075-58-88, BROOKLYN, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Jan. 22 CD, 12/20.

† **Paul Tishman Co.,** 21 E. 70th St., New York 21, N. Y., CA heating plant, Suffolk County Air Force Base, WESTHAMPTON BEACH, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Jan. 14, CD 1/9.

† **Atlas Railroad Constr. Co. Inc.,** Express Highway West Bentleyville, Pa., LB $78,975, est. $100,000-$125,000, (13 bidders) railroad spur and unloading platform, Seneca Ordnance Depot, Serial No. ENG. 30-075-58-129, ROMULUS, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Jan. 21, CD 1/13.

NEW JERSEY—Comr. State Hy. Dpt., 1035 Parkway Ave., Trenton.

General Paving Co., Georgia Ave. and Thorofare, Atlantic City, N. J. CA $612,147. wid'n., resurf. 3.642 mi. Rte. 33, Sections 17A and 18, from Rte. 35 to Garden State Parkway in Neptune Twp. and Borough of Neptune, Monmouth Co., Bids Jan. 9, awarded Jan. 23. CD 1/14.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton.

N. J.—Public Constructors, Inc., Gloucester, N. J. CA $2,161,999. grading, bridges, incidental paving 1.563 mi. Rte. 108, Sections 1A and 2D (Trenton-Deepwater Freeway) from Big Timber Creek to 1,000 ft. west of Bell Rd., Camden Co., FAI;

N. J.—Villa Contg. Co., 233 North Ave., Westfield, N. J. CA $3,048,256. grading, paving and bridges 3.977 mi. Rte. 102, Sect. 2B, from Still Valley to Central Railroad of N. J. crossing in Bloomsbury, Warren and Hunterdon Counties, FAI. Bids Jan. 7,

† **Morris, Wheeler & Co.,** 2500 E. Duncan St., Phila., Pa., CA $95,879, fabricated structural steel, Lot No. 1, for Special Facility, McGuire Air Force Base, Contr. No. DA-36-109-ENG-6711, WRIGHTSTOWN, N. J. U. S. Eng., 2635 Abbottsford Ave., Phila., Pa.;
Chicago Pneumatic Tool Co., 6 East 44 St., New York, N. Y., CA $561,724, 4 diesel electric generators with all associated equipment for heat and power plant of Special Facility, McGuire Air Force Base, Contr. No. DA-36-109-ENG-6716, (Wrightstown, N. J.).

Spera Constr. Co., 1625 N. Front St., Harrisburg, Pa. LB $133,000, general constr. revamp BOILER PLANT and electrical sys. and installation of new water mains at State Farm Show Bldg., Cameron and Maclay Sts., HARRISBURG, PA. General State Auth. 18 and Herr Sts. Harrisburg, Pa. Bids Jan. 22, CD 12/20;
Riggs Distler & Co., Inc., 1518 Walnut St., Phila. Pa. LB $354,354 heating constr. (Harrisburg, Pa.);
E. C. Ernst, Inc., 1927 Paxton St., Harrisburg, Pa. LB $79,398 electrical work (Harrisburg, Pa.).

Howard P. Foley Co., 228 Isabella St., Harrisburg, Pa. LB $107,590, est. $152,000, imprv. steam distribution sys. Phase II at Torrance State Hospital, TORRANCE, PA. General State Auth. 18th and Herr Sts., Harrisburg, Pa. Bids Jan. 22, CD 12/20.

▲† **Blake Constr. Co.,** 33 E. St. S. W., Wash., D. C., LB $2,688,000 est. $3,000,000, (6 bidders), memorial stadium and parking area, Naval Academy, ANNAPOLIS, MD. Officer in Charge of Constr., U. S. Naval Academy, Annapolis, Md. Bids Jan. 21, CD 12/31, under Public Bldgs.

BUILDINGS—LB & CA

▲ **Santoro Constr. Co.,** 68 Buell Ave., Buffalo 11, N. Y., CA est. $5,000,000, 400,000 sq. ft. SHOPPING CENTER, AMHERST, N. Y. Wonderland Shopping Center, Inc., Chas. E. Fadale, pres., Erie Co. Bank Bldg., Buffalo 2, N. Y. Milton Milstein, Jackson Bldg., Buffalo, N. Y., archt.

Fred J. Brotherton, Inc., 185 Atlantic Ave., Hackensack, N. J. CA $536,130, DINING HALL on campus, MADISON, N. J. Drew University, 36 Madison Ave., Madison, N. J. Bids Dec. 4, awarded Jan. 17. LaPierre, Litchfield & Partners, Alfred Hopkins & Assoc., 292 Madison Ave., New York 17, N. Y., archts. CD 12/27, under LB.

Gordon Constr. Co., 1436 E. Elizabeth Ave., Linden, N. J., CA $93,000, GARAGE, MERCERVILLE, N. J. Heller Constr. Co., 972 Broad St., Newark, N. J.

▲ **Vanguard Estates** (Jack Epstein) 612 Longwood Rd., South Orange, N. J., Owner builds, $1,225,000, 76 HOUSES, Summerfield Manor on Wayside Dr., NEPTUNE, N. J. Erwin Gerber, 11 Commerce St., Newark, N. J., archt.

▲ **Greenway Homes Assocs.,** E. Conkimen, pres., 618 Charles Rd., River Vale, N. J., Owner builds, $2,225,000, approx. 100 HOUSES, Greenway Homes, Prospect Ave., RIVER VALE, N. J. Emil Schmidlin, 686 Central Ave., East Orange, N. J., archts.

▲ **Sidney Berg,** 17 Maple Dr., Great Neck, N. Y., Owner Builds. $1,750,000. 110 HOUSES on site of Old Norwood Club on Norwood Ave., WEST LONG BRANCH, N. J. Samuel Paul, 89-51 164 St., Jamaica, N. Y., archt.

Uniontown Constr. Co., 144 E. Main St., Uniontown, Pa. LB $876,000. (11 bidders) general constr. SECONDARY SCHOOL BLDG. for California Community Jt. School Bd., CALIFORNIA, PA. Pa. P. School Bldg. Auth., 101 S. 25th St., Harrisburg, Pa. Bids Jan. 23. CD 12/20.

Charles R. Scrivener Co., 230 S. Hilton St., Baltimore, Md., CA Est. $700,000 (7 bidders), STORE remodeling and addn., CUMBERLAND, MD. G. C. Murphy Co., Cumberland, Md. Bids Dec. 30, awarded Jan. 20. CD 12/27.

Ernest DiSabatino & Sons, 2601 W. Fourth St., Wilmington, Del., CA Est. $700,000, 2 story SCHOOL, Arch-

(Continued on page 78)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England | **Middle West**
Middle Atlantic | **West of Mississippi**
South | **Far West**

PROPOSED WORK

Water Supply | **Public Buildings**
Sewers, Waste Disposal | **Mass Housing**
Bridges | **Commercial Buildings**
Streets & Roads | **Industrial Buildings**
Earthwork, Waterways | **Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† **Federal Government**
▲ **Project of $1,000,000 or over.**
ENR **Engineering News-Record**
CD **Construction Daily**
For additional reports see Construction Daily.

How Tomei Constr. Co.

moves 5 yds. per minute grading homesites

in Sierra Madre foothills

Tomei Construction Company of Van Nuys, California, contracted to carve hillside homesites out of the foothills of the Sierra Madre Mountains, near Arcadia. The job consisted of moving 800,000 yds. of dirt to step-terrace the side of the hills... leveling "pads" for homesites on the terraces... and building streets to make the hillside homes accessible.

Chooses 'Pulls* to do job

Step-terracing these hills called for working on steep grades, ranging to 22%, and hauling over uneven footings in very narrow quarters. To handle this assignment, Contractor Tomei chose 3 LeTourneau-Westinghouse 18-yd. Fullpak* scrapers with C Tournapulls®.

To begin each terrace, Tomei first pioneered a ledge with a dozer... then brought in his low, wide 18-yd. C Fullpaks. On the terrace, 'Pulls demonstrated their ability to work efficiently and safely in hilly, confined areas. Their quick, positive electric controls, and geared kingpin steer, helped operators maneuver the big units with ease from cut to fill... moving big yardages fast. With low center of gravity, and 40° oscillating pivot around kingpin, "C's" gave excellent stability on the steep, rough grades ... permitting safe work at higher speeds, for profitable production.

3 Fullpaks move 5,000 yds. per day

In spite of adverse working conditions, the three 18-yd. C Fullpaks set a fast pace, averaging 5,000 yds. per 9-hr. day. Easy-loading Fullpaks, equipped with sideboards, were push-loaded with 15 yds. of granite dirt, sand, and rocks, within 62′ in about 40 seconds. "C's" hauled 552′... spread in smooth, thin layers... and returned to the borrow area to complete 1239′ cycle in an average of 3 min.

'Pulls help compact fill

A high degree of compaction was specified on this job, and Tournapulls' big, low-pressure tires rolling over the fill proved a great advantage. After loads were spread, a tractor-drawn L-W sheep's foot roller was able to reach 90% compaction in only 3 passes.

"They're really dirtmovers"

Pleased with the performance of his 'Pulls, and with their good production record, owner Julis Tomei says, "They're the best machines for this type of work. All I can say is, they're really dirtmovers."

Fullpak has proved to be a money-maker for contractors all over the world. It will pay you to get all the facts. Ask for full specifications.

*Trademark CP-1532-DC-1

C Fullpak heaps 15 yds. of granite dirt over 62′ in 40 sec., carving out hillside homesites in California. The job was prime contracted by Camden Wilshire Co., Beverly Hills... Engineering by Tegart Engineers, Los Angeles.

Spreading its load in thin, even layers... and compacting as it travels... C Fullpak helps achieve high compaction specified.

LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

HOW TO HANDLE
WET JOBS

DEEP PIT
EXCAVATION
Malta, N. Y.
Excavator: Maloy, Dugan & Maloy
Gen'l Contractor: Carl Buhr, Inc.

DEEP PIT STABILIZED
DESPITE STEEP SLOPES

THIS JOB TOOK great engineering skill—to dig a 37-ft deep pit in fine sand containing 17 ft of water—to do this without collapse of the steep slopes, so that quantity of excavation could be held to a minimum. Furthermore, borings taken only to subgrade had not revealed a silt layer 6 ft below, and this added still another headache, since artesian pressure threatened to "blow the bottom."

• Using a combination wellpoint dewatering and pressure relief system (see photo) Griffin engineers stabilized the excavation . . . kept subgrade dry...solved all the problems economically and dependably. What's *your* problem?

GRIFFIN
WELLPOINT CORP.
981 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.
In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

(Continued from page 76)

mere Academy, CLAYMONT, DEL. Archmere Academy, 20 Manor Ave., Claymont, Del. Bids Jan. 16, CD 1/15.

SOUTH

HEAVY CONSTRUCTION—BA

Ky., Louisville—BA 2/14—Metropolitan Sewer Dist., 412 W. Market St., Contract 295, Main Street Interceptor Sewer, 1,900 lin. ft. 6 ft. gravity sewer, 1,900 lin. ft. 5 ft. force main. Over $600,000. Plans deposit $20. Metcalfe & Eddy, Statler Bldg., Boston, Mass., engrs. CD 3/15/56.

Ala., Birmingham—BA 2/18—Jefferson Co. Comm., Courthouse, sanitary sewer imprvs. $100,000. Plans deposit $25. J. W. Goodwin Engineers., 2111-7th Ave. S., engrs. CD 10/11.

† Ky., Fort Knox—TANK DRIVING COURSE—BA 3/4—U. S. Armor Center, Central Purchasing Branch, Fort Knox, tank driving course, A-11-15-014-58-62. Over $75,000. Extended date.

† S. C., Beaufort—BA 3/4—Dist. P. Wks. Office, Bldg. No. 13, U. S. Naval Base, Charleston, paving in Family Housing Area, U. S. Marine Corps Aux. Air Station, NBy 15983, Spec. 15983/57 CD 9/17 2/6/58.

BUILDINGS—BA

▲† W. Va., Huntington—FEDERAL OFFICE—BA About 3/7—General Services Admin., Public Bldgs. Service, Wash., D. C., 7 story, bsmnt., penthouse, approx. 133,-200 sq. ft., concrete, steel and masonry federal office. $3,000,000. CD 1/12/56.

HEAVY CONSTRUCTION—LB & CA

† Townsco Contg. Co., 1115 Cravens Bldg., Oklahoma City, Okla., CA $82,360, cleaning and sealing airfield joints and cracks, Tyndall Air Force Base, IFB 08-637-58-35, PANAMA CITY, FLA. U. S. Eng., 2301 Grant St., Mobile, Ala. CD 9/18/58.

George D. Aughter Co., Box 1588, Jacksonville, Fla., LB $109,850 alt. base bid, LB $121,210 Base Bid, municipal yacht pier, ST. AUGUSTINE, FLA. City Comm., City Hall, St. Augustine, Fla. Smith & Gillespie, Box 1048, Jacksonville, Fla., engrs.

BUILDINGS—LB & CA

Sharpe & Hamaker, Inc., 3248 Wilson Blvd., Arlington, Va. LB $374,000 (6 bidders) Base Bid BANK BLDG., Glebe Rd. and Wilson Blvd. ARLINGTON, VA. First National Bank of Arlington, 249 N. Glebe Rd., Arlington, Va. Bids Jan. 21. CD 1/23.

▲ Eugene Simpson & Brother, 300 Montgomery Ave., Alexandria, Va. CA $2,365,121, Base Bid incl. 3 alternates. Gunston JUNIOR HIGH SCHOOL, Arlington Ridge Rd. and 28th St. South, ARLINGTON, VA. Arlington County School Bd., 1426 Quincy St., Arlington, Va. Bids Jan. 21, awarded Jan. 25. CD 1/24, under LB.

▲ H. K. Ferguson Co., 1783 E. 11, Cleveland, O. CA $3,500,000, design and construct RESEARCH LABORATORY, RICHMOND, VA. Philip Morris, Inc., 1915 E. Main St., Richmond, Va. CD 12/14/50.

▲ † Terminal Constr. Co., & Frouge Constr. Co., State Hy. 17 and Moonache Ave., Wood-Ridge, N. J., CA $19,191,750, est. $20,000,000, 1255 units armed services HOUSING IFB 08-621-57-59, vicinity of HOMESTEAD, FLA. Base Contracting Officer, Homestead Air Force Base, Fla. Bids Aug. 29, CD 9/4, under LB.

† Lake Constr. Co., 420 Lincoln Rd., Miami Beach, Fla. LB $492,742 (14 bidders) three 2 story, 26x220 ft. brick APARTMENT BUILDINGS B.O.Q. for Nurses, incl. water lines, sewers and underground steam line, ENG-15-029-58-1, FORT KNOX, KY. U. S. Eng., P.O. Box 59, Louisville 1, Ky. Hartstern, Louis & Henry, McDowell Bldg., Louisville 2, Ky., archt. E. R. Ronald & Assoc., 554 S. 3rd St., Louisville 2, Ky., engrs. Bids Jan. 14. CD 12/5.

▲ Kentucky Engineering & Materials Co., Paintsville, Ky., CA est. $2,012,000 (a) Coal Cleaning PLANT (b) WAREHOUSE AND OFFICE, IRVINE, KY. South East Coal Co., P. O. Box 332, Irvine, Ky.

MIDDLE WEST

BUILDINGS—BA

O., Dayton—HOSPITAL—BA 2/18—Dpt. P. Wks., State Dpts. Bldg., Columbus, Patient Bldg., at Dayton State Hospital for Dpt. Mental Hygiene & Correction, $845,000. Plans deposit $25. Walker, Norwick & Assocs., 12 N. Monument Ave., archts. CD 2/17/52.

BUILDINGS—SLC

▲ Ill., Evanston — FRATERNITY — Northwestern University, 619 N. Clark St., Chicago, soon lets contract Elder Hall fraternity building. $1,315,000. Holabird, Root & Burgee, 180 N. Wabash Ave., Chicago, archts. CD 5/25/56.

HEAVY CONSTRUCTION—LB & CA

Great Lakes Dredge & Dock Co., Williamson Bldg., Cleveland 14, O., CA $705,980, constr. bulkhead 4-B, Cuyahoga River, CLEVELAND, O. City of Cleveland, Dpt. Port Control, Wm. J. Rogers, dir., City Hall, Cleveland 14, O. Bids Jan. 16. CD 1/23, under LB.

Shamrock Eng. Co., 865 S. Lake St., Gary, Ind., LB $79,480, bridge, County Line Rd., GARY, IND. City, City Hall, Gary, Ind. Bids Dec. 31.

Smith & Johnson, Inc., 1799 Kentucky Ave., Indianapolis, Ind., CA $994,994, Raymond Street bridge over White River, State Rte. 37 and Illinois Central R. R. tracks, INDIANAPOLIS, IND. City, City Hall, Indianapolis, Ind. Bids Dec. 5, awarded Jan. 21, CD 12/27, under LB.

▲ ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield, Bids opened 1/21.

Ill.—Culberson Constr. Co., Pana, Ill., LB $139,304, 2 grade separation structures on F.A.I.—No. 8, Lawrence Co.; LB $308,653, 2 bridges on F.A.I.—No. 7, Effingham Co.;

Ill.—Arcole Midwest Corp., 3225 Main, Evanston, Ill., LB $569,572, grade separation for Northwest Expressway, Cook Co.; LB $425,356, grade separation on Northwest Expressway, Cook Co.;

Ill.—Shappert Engineering Co., E. Menominee and Blaine, Belvidere, Ill., LB $130,878, I-beam bridge on Ill. 2, Winnebago Co.;

Ill.—E. H. Swenson & Son, 1400 Henderson, Joliet, Ill., LB $376,133, 2 concrete grade separation structures and bit. paved approaches, both in U S 66, Will Co.;

Ill.—Fisher-Stoune, Inc., 413 Citizens Bldg., Decatur, Ill., LB $232,728, 1 railroad subway on Ill. 48 and 121, Macon Co.;

Ill.—M. Hoeffken Co. & Hoeffken Bros, Inc., 222 West "B", Belleville, Ill., LB $255,648, 2 grade separation structures and 1 concrete slab bridge, both on Ill. 158, St. Clair Co.;

Ill.—Emil P. Hendricks Co., Inc., 6754 N. Sheridan Rd., Chicago 26, Ill., LB $82,690, 1 highway bridge on Ill. 47, Livingston Co.;

Ill.—McCann & Co., Inc., P. O. Box 201, Springfield, Ill., LB $407,758, 1 bridge and 2 approach spans on Ill. 3, Jackson and Union Counties;

Ill.—E. M. Melahn Constr. Co., Algonquin, Ill., LB $246,529, erect superstructure for bridge on F.A. 6, Kane Co.;

Ill.—Ladd Constr. Co., Ladd, Ill., LB $216,910, concrete slab bridge and I-beam bridge, both on Ill. 92, Bureau Co.;

Ill.—Sweborg Constr. Co., P. O. Box 1122, Galesburg, Ill., LB $179,877, railroad grade separation on U. S. 24, Fulton Co. CD 1/7.

▲ Illinois—Dpt. P. Wks. & Bldg., Div. Hys., Centennial Bldg., Springfield,

Ill.—M. Hoeffken Co. & Hoeffken Bros., Inc., 222 West "B", Belleville, Ill., LB $249,628, 0.29 mi. concrete base course wid'n. 0.44 mi. concrete base course, 0.73 mi. gravel or crushed stone base course and 0.73 mi. bi. conc. resurface, all on S.B.I. 3 Randolph Co.; LB $221,520, 1.02 mi. base course wid'n. and 1.63 mi. bi. conc. resurface Ill. 15, St. Clair Co.;

Ill.—Rockford Black Top Constr. Co., 1615 Westchester Dr., Rockford, Ill., LB $299,226, bit concrete resurface 12.98 mi. Ill. 64, Ogle Co.; LB $124,346, bi. conc. resurface, gravel or crushed stone base course 0.95 mi. Ill. 2, Ogle Co.;

Ill.—Suburban Oil Co., 7340 W. 15th St., Forest Park, Ill., LB $76,887, intermitent bit. concrete patch and bit. patch 3.25 mi. Ill 23, 31, 120 and 173, DeKalb and McHenry Counties;

Ill.—General Paving Co., Inc., 30 E. John St., Champaign, Ill., LB $231,706, concrete base course and b. conc. surface 1.29 mi. U.S. 150, Champaign and Vermilion Counties;

Ill.—Cassidy Constr. Co., 228 N. LaSalle St., Chicago, Ill., LB $753,287, 4.33 mi. storm sewer on U.S. 12, Cook Co.;

Ill.—Leon B. Stilley Constr. Co., P.O. Drawer 192, Marion, Ill., LB $1,079,578, c. conc. pave. 1.95 mi. F.A.I. 4, Union Co.;

Ill.—Bridges Paving Co., 1337 S. Kingshighway St., St. Louis, Mo., LB $341,498, 5.35 mi. concrete base course wid'n.; 0.43 mi. concrete base course and 7.32 mi. b. conc. resurf. Ill. 37, Marion Co.;

Ill.—R. B. Fotashnick & Regenhardt Constr. Co., Box 423 Cape Girardian, Mo., LB $520,889, 2.16 mi. P.C.C. pave and 0.07 mi. concrete and bit. resurface on F.A. 185, Jefferson Co.;

Ill.—Contracting & Material Co., 1235 Dodge Ave., Evanston, Ill, LB $240,660, 181 mi. storm sewers and drainage structures on Ill. 64, Cook Co.;

Ill.—Charles Ind. Co., 1415 Point Ave., Rockford, Ill., LB $530,784, 11.78 mi. concrete base course wid'n. and 1.2 mi. concrete base course Ill. 64, Ogle Co.;

Ill.—G. S. Chastain, 2505 N. Jasper, Decatur, Ill & Pano Constr. Co., Champaign, Ill. & McMahan Constr. Corp., Rochester, Ind., LB $946,859, c. conc. 1.75 mi. Ill. 98 & 121, Macon Co.;

Ill.—Sangamo Constr. Co., 700 N. MacArthur Blvd. Springfield, Ill., LB $297,392, 1.35 mi. concrete base course and 2.03 mi. b. conc. resurface on Ill. 4, Macoupin Co.;

Ill.—E. T. Simonds Constr. Co., P.O. Box 356, Carbondale, Ill., & J. D. Barter Constr. Co., Harrisburg, Ill., LB $780,676, 5.13 mi. concrete base course wid'n. and 2.45 mi. concrete base course on U.S. 45, Williamson and Saline Counties;

Ill.—Maclair Asphalt Co., Inc., 6000 Callinsville Rd., East St. Louis, Ill., LB $214,870, b. conc. resurface 7.6 mi. U.S. 45, Saline and Williamson Counties, CD 1/7.

Ill.—Triangle Constr. Co., 480 N. Evergreen Ave., Kankeekee, Ill., LB $765,870, c. conc 2.89 mi. F.A. 14, Williamson Co., CD 1/10.

Blaktop Roads, 2546 Manheim Rd., Melrose Park, Ill., LB $112,462, bit. surf., concrete curbs, gutters, storm sewers—Sec. 18—cs., Madison St., 1.39 mi., VILLA PARK, ILL. Village, Villa Park, Ill.

MICHIGAN—State Hy. Dpt., John C. Mackie, comr., Stevens T. Mason Bldg., Lansing, Bids opened 1/15.

Thornton Constr. Co., 1028 Ethel Ave., Hancock, Mich., LB $323,833, est. $400,000 (12 bidders), aggreg, base course wid'n. and 22 ft. b. conc. surf. 15.138 mi. M-28 intermittently easterly to 5.6 mi. east M-123, F 17061 C1-4 (F 189 25) F 17061 C2-R (F 189 25) F 17062 C1-R (F 189 25), Chippewa Co.; LB $330,283, est. $430,000 (14 bidders)

concrete base course wid'n. and 24 -28 ft. b. conc. paving 7.378 mi. in three section US041 from one mi. north of Hancock northeasterly, F 31052 C1 F 31052 C2 F 31052 C3 (F 175 24), Houghton Co. CD 12/30.

MICHIGAN—State Hy. Dpt., Escanaba, Bids opened 1/15.

Fox Valley Constr. Co., Appleton, Mich. LB **$338,339**, est. $440,000 (13 bidders) 4 ft. conc. base wid'n., 24 ft. bit. pavmnt. 9.321 mi. US-2 and US-41 from West Delta Co. line westerly, F. 55022 C2-R (F 136 17) Menominee Co. CD 1/2.

BUILDINGS—LB & CA

▲ **Paul Decker**, 2121 Riverside Dr., Columbus, O., Owner Builds, **$1,000,000**, 17-acre tract being plotted into 34 lots, RESTRICTED BUILDING, Ridgeview and North Star Rds., COLUMBUS, O.

▲ **Todd Tibbals**, 965 E. Broad St., Columbus, O. Owner Builds, **$1,620,000**, APARTMENTS, between Nelson and Sunbury Rds., east COLUMBUS, O.

Alger-Rau & Assocs., 17024 Miles Ave., Cleveland 28, O. CA **$513,419** (9 bidders) general contract, HIGH SCHOOL addn., EAST CLEVELAND, O. Bd. Educ., 1849 Shaw Ave., East Cleveland, O. Bids Jan. 14, awarded Jan. 20. CD 1/22/58, under LB.

Knowlton Constr. Co., 1133 Columbus St., Bellefontaine, O., LB **$778,800**, ELEMENTARY SCHOOL, INDIAN HILL, O. Indian Hill School Dist., Drake Rd., Indian Hill, O. Bids Jan. 14. CD 12/13.

▲ **Leo W. Schmidt Co.**, 9920 Granger Rd., Cleveland, O., CA Approx. **$1,000,000** (general contract) Cancer HOSPITAL, PARMA, O. Catholic Diocese of Cleveland, 1027 Superior Ave., Cleveland 14, O. Bids Jan. 14, CD 12/31.

▲ **United Constr. Co.**, 1204 Lincoln, Pittsburgh, Pa., LB **$1,232,000**, general contract, Low Rent HOUSING Project OH 14-1, STEUBENVILLE, O. Steubenville Metropolitan Housing Auth., 604 Sinclair Bank Bldg., Steubenville, O. Bids Jan. 16. CD 12/17.

W. B. Gibson, Inc., 200 Chestnut St. N.E., Warren, O., LB **$1,528,828**, entire job, low rent housing Proj. OH 14-1 (Steubenville, O.).

Fred W. Enterman, Inc., 3325 Secor Rd., Toledo, O., LB **$638,000**, Student UNION BLDG., University of Toledo, TOLEDO, O. University of Toledo, 2806 W. Bancroft, Toledo, O. Bids Jan. 21. CD 1/7.

Wallace F. Ackley, 2995 Northwest Blvd., Upper Arlington, O., Owner Builds. **$450,000**, 19 HOMES, Wellesley Dr., UPPER ARLINGTON, O.

▲ **Badger Mfg. Co.**, 230 Bent St., Cambridge, Mass., CA **$8,000,000**, addn. to oil dewaxing plant, EAST CHICAGO, IND. Sinclair Refining Co., 3500 Indianapolis Blvd., East Chicago, Ind. (**Correction**—contractor). CD 12/12, under CA.

▲ **Dwight Lloyd, Div. of McDowell Co.**, 16300 Waterloo Rd., Cleveland, O., CA **$13,500,000**, SINTERING PLANT, ore bridge, Watling St., EAST CHICAGO, IND. Inland Steel Co., 3210 Watling St., East Chicago, Ind.

Langlois Constr. Co., 207 S. Gilbert St., LaGrange, Ill., CA **$500,000**, SCHOOL, 163rd and Hirsch St., CALUMET CITY, ILL. Parish of Our Lady of Knock, c/o St. Victor Rectory, Calumet, Ill. CD 1/8.

▲ **Abbot Constr. Co.**, 5789 N. Lincoln Ave., Chicago, Ill., CA **$1,194,160**, 2 story, brick Henry Suder Elem. SCHOOL, Washington and Leavitt Sts., CHICAGO, ILL., Chicago Bd. Educ., 228 N. LaSalle St., Chicago, Ill. CD 1/2.

▲ **A. L. Jackson Co.**, 300 W. Washington Blvd., Chicago, Ill., CA **$1,000,000**, 2 story brick Ambassador West HOTEL addn., 1310-12 N. State St., CHICAGO, ILL., Hotel Sherman Inc., Clark and Randolph Sts., Chicago, Ill., Loebl Schlossman & Bennett, 430 N. Michigan Ave., Chicago, Ill., arch.

▲ **Kinnare Corp.**, 2816 W. Monroe St., Chicago, Ill., CA **$1,300,000**, 1 story, brick, stone CHURCH, 4432 N. Troy St., CHICAGO, ILL. Our Lady of Mercy Parish, 4432 N. Troy St., Chicago, Ill. CD 12/16.

▲ **Edward Gray Corp.**, 12233 S. Ave. "O", Chicago, Ill., LB **$3,269,718**, Glenbard East HIGH SCHOOL, Main and Wilson Rd., LOMBARD, ILL. School Dist. 87, 670 Crescent St., Glen Ellyn, Ill. CD 12/27.

▲ **The Austin Co.**, 510 N. Dearnborn St., Chicago, Ill. CA **$1,500,000**, 1 story, 48,000 sq. ft. brick LABORATORY BLDG., Pfingston Rd., NORTHBROOK, ILL. Underwriters Laboratories, Inc., 207 E. Ohio St., Chicago, Ill.

Wm. G. Goettsche Co., 38 N. Broadway, DesPlaines, Ill., CA **$750,000**, 1 story, 55,000 sq. ft. brick WAREHOUSE and OFFICE BLDG., paving 5040 W. 111th St., OAK LAWN, ILL. McKesson & Robbins, 540 W. Randolph St., Chicago, Ill. CD 12/11.

Engelhardt Constr., Shearer Bldg., Bay City, Mich., LB **$93,000**, WAREHOUSE and OFFICE, BAY CITY, MICH Bay City Milling & Grocery Co., Bay City, Mich. Bids Dec. 30. CD 12/31.

Leo E. Kuhlman, 9716 Conner, Detroit 13, Mich., CA **$626,000**, ELEMENTARY SCHOOL, Kenebeck St., RIVERVIEW, MICH. Bd. Educ., Riverview Community School Dist., Wyandotte, Mich. Bids Dec. 30. CD 12/6.

WEST OF MISSISSIPPI

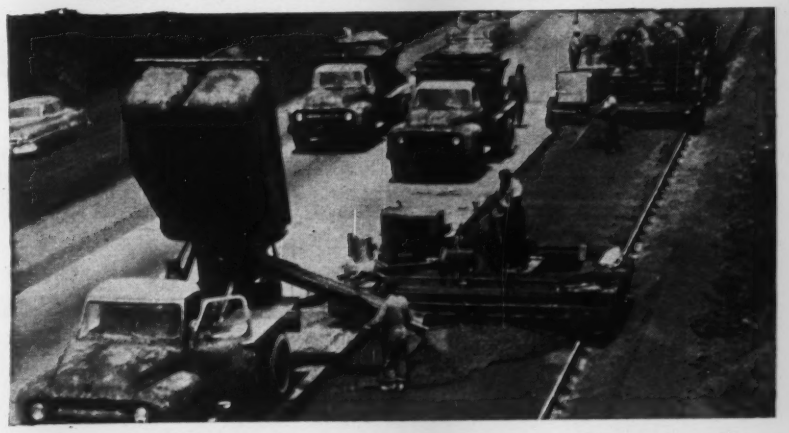
HEAVY CONSTRUCTION—BA

†**Minn., Duluth**—RUNWAY—BA On or About 2/26—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, constr. E-W Runway replacement at Duluth Air Force Base, ENG 21-018-58-9. CD 9/18.

†**N. M., Roswell**—WAREHOUSE—BA 2/26—U. S. Eng., Box 1538, Albuquerque, cold storage food ware-

(Continued on page 82)

SEND FOR FIELD REPORT ON THIS JOB!



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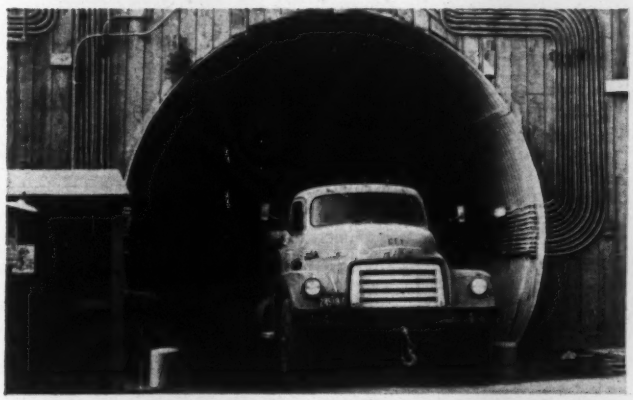
BRAWNY GMC MONEY-MAKER TANDEMS—like this big Model W660—are holding down some of the toughest assignments on the Seaway project. Extra-stamina engineering—including full-length frame reinforcements installed at the factory—let users haul thousands of tons of steel—day after day—without strain. GMC Money-Maker Tandems blanket the 28,000 GVW-90,000 GCW field.



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GRANVILLE ST. BRIDGE, VANCOUVER, BRITISH COLUMBIA—One of the largest 8 lane bridges in North America. Here Weld-Crete was applied to bridge surface to bond cement dividing strips. Now, over 4 years later, bonds are as good as new. *General Contractor:* Dominion Bridge Company.

SEVEN CORNERS SHOPPING CENTER, FALLS CHURCH, VIRGINIA—During construction of this 600,000 sq. ft. structure, initially only part of floor was poured and floated to a smooth finish. Areas in which show windows would be added were poured as base slab only. Slab was coated with Weld-Crete. After store fronts were custom-built, delayed toppings of 1" to 1½" thick were poured with assurance of permanent bond to base slab. These toppings were then finished with asphalt tile, wood, or finish flooring of lessee's choice. Designed and constructed by The Kass Realty Co. of the Kass-Berger Organization under direction of J. Franklin Groff. *Concrete Contractor:* Moses-Ekco.

(Continued from page 79)

house, Walker Air Force Base; (432-283), $100,000-$500,000, CD 9/17.

†**Mont., Kalispell**—BA 2/27—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., driilling, casing Water Wall No. 2-TM-179 to depth of approx. 400 ft. at Air Force Station, ENG—45-108-58-54.

† **South Dakota**—BA 3/4—Bureau Reclamation, Dpt. Interior, Huron, power sys. operations office bldg. at Watertown, Missouri River Basin Proj. Spec. DC 5017, advENR 2/6. CD 5/25/44.

†**Texas**—BA about 3/5—U. S. Eng., P. O. Box 1600, Forth Worth, erosion control at Fort Hood and Killeen Base ENG—41-443-58-24. CD 9/18, under Tex., Fort Hood, Gray Air Force Base.

BUILDINGS—BA

▲ **Okla., Tulsa**—SCHOOL—BA 2/14—Bd. Educ., 410 S. Cincinnati St., Orville Wright Jr. High School, $1,000,000. Plans deposit $100. Leon B. Senter, Philtower Bldg., archt. CD 7/19.

Tex., Stephenville—RESIDENTIAL HALL—BA 2/14—Tarleton State College, c/o E. J. Howell, pres., 3 story, brick, rein.,—conc., etc., men's residential hall, $475,000 Plans deposit $25. Hedrick & Stanley, 1200 T&P Bldg., Fort Worth, archts. CD 11/22.

N. M., Los Alamos—SCHOOL—BA 2/19—U. S. Atomic Energy Comm., Los Alamos Area Office, Los Alamos, elementary school, $350,000.

▲ **Minn., White Bear Lake**—SCHOOL—BA 2/25—Bd. Educ., R. J. Hanson, clk., 110,000 sq. ft. Junior High School. $1,500,000. Haarstick-Lundgren & Assocs., N. 212 First Natl. Bank Bldg., St. Paul, archts. CD 6/25.

▲ **Iowa, Cedar Rapids**—HOSPITAL—BA 3/4—Mercy Hospital, 835 6 Ave. S. E., 6 story, bsmnt., 95 bed hospital addn, $1,750,000. J. J. Flad & Assocs., 2525 University Ave., Madison, Wis., engrs.-archts. CD 6/20.

HEAVY CONSTRUCTION—LB & CA

† **W. E. Caldwell Co.**, 200 E. Brandeis Ave., Louisville, Ky., LB $76,124, est. $100,000-$150,000 (4 bidders), Elevated Water Storage Tank No. 86, Proj. 22-5131, Veterans Admin. Hospital, ST. CLOUD, MINN. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Jan. 21. CD 12/2;

▲ **MISSOURI** — State Hy. Dpt., Jefferson City, Bids opened Jan. 17,

Mo.—**Trinidad Asphalt Co. & Quarry Realty Co.**, 4030 Chauteau Ave., St. Louis, Mo., LB $314,126 (7 bidders) shoulder wid'n. 24 ft. b. conc. 10.242 mi., Audrian Co.; LB $378,628 (9 bidders) wid'n., b. conc. Callaway Co.;

Mo.—**J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Mo., LB $903,709 (3 bidders) two 24 ft. c. conc. 3.481 mi. Clay Co.; LB $1,110,672 (3 bidders) concrete pvmnt. and shoulder 8.164 mi. Clay Co.;

Mo.—**C. H. Atchison Paving Co. & Land Constr. Co.**, King Hill Bldg., St. Joseph, Mo., LB $760,492 (8 bidders) 24 ft. b. conc. 7.091 mi. Schuyler Co.; LB $77,961 (8 bidders) 24 ft. b. conc. 0.492 mi. Schuyler Co.;

Mo.—**Joseph L. Pohl, Contractor**, Nevada, Mo., LB $78,-944 (7 bidders) crushed stone surf. 8.133 mi. Vernon Co.;

Mo.—**L. E. Meyers Co.**, Clayton, Mo., LB $86,959 (3 bidders) expressway lighting, City of St. Louis;

Mo.—**W. J. Menefee Constr. Co.**, 2500 W. 16 and P.O. Box 30, Sedalia, Mo., LB $515,866 (6 bidders) 24 ft. b. conc. 3.464 mi. Washington Co. CD 12/30.

▲ **MISSOURI**—State Hy. Dpt., Jefferson City, Bids opened 1/17,

Mo.—**J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Mo., LB $134,476, one 75 ft., two 60 ft., one 49 ft., two 33 ft. I-beam spans; LB $195,898 (3 bidders) one 76 ft., two 63 ft. I-beam spans, twin bridges; LB $93,460 (3 bidders) two 77.95 ft., one 60 ft., one 50 ft. I-beam spans; LB $94,922 (3 bidders) two 71 ft., one 60 ft., one 52 ft. I-beam spans; LB $120,085 (3 bidders) one 50 ft., two 40 ft. slab spans, twin bridges, all foregoing Clay Co.;

Mo.—**Union Constr. Co.**, 140 Fairfax Trafficway, Kansas City, Mo., LB $79,213, two 15x16 ft. rein.-con. slab spans, culvert type, Clay Co. CD 12/30.

Mo.—**C. Rallo Contg. Co.**, 5000 Kemper, St. Louis, Mo., LB $1,338,611 (6 bidders) one 480 ft., two 360 ft., truss span, one 50 ft. I-beam span, Barry Co. CD 12/20.

▲ **TEXAS**—State Hy. Comm., Austin, Tex.—**C. Hunter Strain & Henry Stafford**, Drawer 1631, San Angelo, Tex. CA $788,377 flex. base and 3 course surf. treat 16.741 mi. Hy. US 60 and 83. Proj. F45 (5) F 625 (6) F 625 (7) Hemphill and Roberts Counties;

Tex. — **C. Hunter Strain & Harry Newton**, P. O. Drawer, 1631, San Angelo, Tex. CA $1,083,462 grading and structures 17.471 mi. Hy. IH 45—Proj. I 1111 (2) El Paso Co.;

Tex. — **Trinity Rd. & Bridge Co.**, P. O. Box 1175, Dallas, Tex. CA $992.701 grading, storm sewers and c. conc. 0.51 mi. Hy. IH 35 E Proj. I 288 (8) Dallas Co.;

Tex. — **Heldenfels Bros.**, P. O. Box 1917, Corpus Christi, Tex. CA $1,678,530 grading, flex. base and b. conc. 0.595 mi. Hy. SH 9 Proj. U 657 (15) Nueces Co.;

Tex. — **Killian-Hause Co.**, 4600 Broadway, San Antonio, Tex. CA $1,097,845 grading, and hot mix b. conc. 0.504 mi. Hy. US 90 Proj. C 24-8-27, Bexar Co. Grand total $5,640,915. Bids Jan. 22. CD 12/31.

▲ **TEXAS**—State Hy. Comn., Austin, bids opened 1/22

Tex.—**E. E. Hood & Sons**, P.O. Box 6097, San Antonio, Tex. LB $111,599 grading, structures base and surf. 7.335 mi. Hy. FM 1560 Proj. S 2159 (2) Bexar Co.; LB $305,874, flex. base and 2 course surf. treatment 9.639 mi. Hy. SH 359 Proj. F 424 (21) Duval Co.;

Tex.—**Perry Constr. Co. & J. W. Perry**, 501 Insurance Bldg., San Antonio, Tex. LB $244,045, grading, structures base and surf. 4.121 mi. Hy. FM 723 Proj. C 188-9-5 Fort Bend Co.;

Tex.—**N. F. Bradley**, 220 N. 12 Memphis, Tex. LB $98,161 grading, structures base and surf. 8.343 mi. Hy. FM 2465, 2466 and 2103 Proj. S 2273 (1) & S 2274 (1) Childress Co.;

Tex.—**Timmins & Anderson**, 3006 Baltimore, Wichita Falls, Tex. LB $111,548 grading, structures base and surf. 3.986 mi. Hy. FM 61 Proj. S 124 (7) & C 529-1-4 Young Co.;

Tex.—**Cage Bros.**, 6959 San Pedro, San Antonio, Tex. LB $211,123 grading, structures base and surf. 12.109 Mi. Hy. FM 1142 & 1298. Proj. S 2264 (1) & S 2265 (1) Kent, Mitchell and Scurry Counties;

Tex.—**Allen Keller Co.**, P.O. Box 393, Fredericksburg, Tex. LB $227,538 grading, structures base and surf. 10.309 mi. Hy. FM 165 Proj. S 429 (2) Hays and Blanco Counties;

Tex.—**W. R. Boyd Inc.**, Box 408, Center, Tex. LB $87,696 grading, structures base and surf. 2.310 mi. Hy. FM 944, Proj. S 1225 (2) Sabine Co.;

Tex.—**West Texas Constr. Co.**, P.O. Box 5067, Lubbock, Tex. LB $364,636 flex. base and 1 course and 2 course surf. treatment 9.030 mi. Hy. US 62 and FM 41 Proj. F 1104 (1) Hockley Co.;

Tex.—**Maupi Constr. Co.**, P.O. Box 6567, San Antonio, Tex. LB $128,189, flex. base and b. conc. 3.975 mi. Hy. US 90, Proj. C 23-4-24, Kinney Co.;

Tex.—**R. C. Buckner**, P.O. Box 609, Jacksonville, Tex. LB $335,016, flex. base and b. conc. 2.939 mi. Hy. SH 326 Proj. S 1513 (5) Hardin Co.;

Tex.—**McElwrath Bros.**, 918 Manor Dr., San Antonio, Tex. LB $83,596 grading, structures base and surf. 6.757 mi. Hy. FM 1937 Proj. S 2160 (2) Bexar Co.;

Tex.—**R. W. McKinney**, P.O. Box 190, Nacogdoches, Tex. LB $237,287, grading, structures base and surf. 9.623 mi. Hy. FM 1743, Proj. S 1585 (2) & S 2176 (2) Fannin Co.;

Tex.—**Brown & Root, Inc.**, P.O. Box 3, Houston, Tex. LB $164,612, flex. base and hot mix b. conc. 2.263 mi. Hy. SH 225, Proj. C 502-1-20 Harris Co.;

Tex.—**Dave McCollough**, P.O. Box 158, Newton, Tex. LB $166,958 grading, structures base and surf. 4.701 mi. Hy. FM 1943, Proj. S 2093 (2) Tyler Co. CD 12/31.

City, City Hall, Beeville, Tex. Owner Builds. $75,000, storm sewers, BEEVILLE, TEX. City, City Hall, Beeville, Tex. Lockwood, Andrews & Newman, 103 N. Liberty, Victoria, Tex., engrs. CD 5/8.

City, City Hall, Beeville, Tex. Owner Builds. $55,000, water distr. lines repairing, replacements extens., BEEVILLE, TEX. CD 5/8.

Bur-Tex Constructors, Inc., Box 336, Corpus Christi, Tex. LB $432,362 sanitary sewer tank main (10,380 lin. ft. 60 in. rein.-con. pipe—airport drainage ditch to Lexington Blvd.) CORPUS CHRISTI, TEX. City, City Hall, Corpus Christi, Tex. Bids Jan. 8. CD 10/15/56.

† **H. B. Zachry Co.**, P. O. Box 10188, San Antonio, Tex. LB $161,170, est. $176,201, 2 Battalion Classroom bldgs. ENG—41-443-58-6, FORT HOOD, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids Jan 21. CD 1/8.

City, City Hall, Grand Prairie, Tex. Owner Builds. $55,000 c.i. water lines, fire plugs, GRAND PRAIRIE, TEX. CD 10/10.

City, City Hall, Grand Prairie, Tex. Owner Builds. $75,000. natural gas lines in South Dalworth area GRAND PRAIRIE, TEX.

† **McCormack Constr. Co.**, Pendleton, Ore. LB $215,275, est. $286,076 (6 bidders) ILAS facility and utilities at Glasgow Air Force Base, ENG 45-164-58-14 GLASGOW, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Jan. 21. CD 12/11.

BUILDINGS—LB & CA

▲† **King Constr. Co.**, Box 39, Texarkana, Tex., LB $2,831,180, BLDG. 700 addn. ENG. 34-066-58-9, FORT SILL, OKLA. U. S. Eng., Box 61, Tulsa, Okla. Bids Jan. 22. CD 1/8/58.

Inwood Constr. Co., c/o Trinity Universal Bldg., Dallas, Tex. CA $215,000 refrigerated foods PLANT, 5 acre tract in Garland Industrial Zone, GARLAND, TEX. General Mills Corp., 9200 Wayzata Blvd., Minneapolis, Minn. CD 1/23.

▲ **Aubra Sharp & Assocs**, 124 E. Main St., Grand Prairie, Tex. Owner Builds. $363,175, 20 DWELLINGS; $347,500, 17 DWELLINGS; $378,000, 25 DWELLINGS in Sharpstown GRAND PRAIRIE, TEX. Grand total, $1,088,675. CD 12/26.

▲ **Manhattan Constr. Co.**, 1811 Crawford St., Houston, Tex. CA $2,000,000 Base Contract, 5 story, bsmnt. HOTEL addn., HOUSTON, TEX. The Rice Hotel, Main and Houston Sts. Houston, Tex. Bids Jan. 9. CD 12/26.

▲ **Rob. H. Smith Co.**, 1915 Kolfahl, Houston 23, Tex. CA $2,754,000 Base Bid, HIGH SCHOOL, PORT ARTHUR, TEX. Port Arthur Ind. School Dist., Port Arthur, Tex. Bids Dec. 19. CD 1/2, under LB.

Carl Gaskin, Builder, Inc., 122 Northaven, San Antonio, Tex. Owner Builds. $363,500, 26 DWELLINGS, adjacent Inspiration Hills, SAN ANTONIO, TEX. CD 12/22.

▲ **Guido Bros. Constr. Co., Inc.**, Box 4326, Station A, San Antonio, Tex. CA $1,533,000. Sam Houston HIGH SCHOOL, SAN ANTONIO, TEX. San Antonio Ind. School Dist., Lavaca and Matagorda Sts., San Antonio, Tex. Bids Jan. 14. CD 1/21, under LB.

Aaron Mandel, Builder, 722 S. Zarzamora St., San Antonio, Tex. Owner Builds. $368,125, 37 low-priced DWELLINGS; $391,500, 41 low priced DWELLINGS,

(Continued on page 84)

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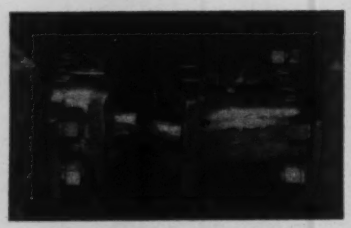

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(Continued from page 82)

200-acre tract Pres Heights Subdivision, SAN ANTONIO, TEX. CD 12/5.

John M. Schaefer, 311 Travis Bldg., San Antonio, Tex. Owner Builds. $359,000, 50 DWELLINGS in Wheatley Heights, SAN ANTONIO, TEX. CD 11/4.

† **Robert E. McKee General Contractor, Inc.,** P.O. Box 1748, Albuquerque, N. M., CA $138,465, Structure S addn. Manzano Base, Contr. No. DA-29-005-ENG-2018 (IFB ENG-29-005-58-30), ALBUQUERQUE, N. M., U. S. Eng., Box 1538, Albuquerque, N. M. Bids Dec. 27. CD 12/2.

▲ **C. H. Leavell & Co.,** 1900 Wyoming St., El Paso, Tex. LB $4,017,000 Base Bid (11 bidders), constr. and finance FEDERAL OFFICE BLDG., ALBUQUERQUE, N. M. General Services Admin., Denver Federal Center, Denver, Colo. Bids Jan. 1. CD 12/19.

† **Allen Campbell Co.,** 3212 Chandler Hy., Tyler, Tex., CA $550,997, VERTICAL LAUNCHING FACILITY, White Sands Proving Ground, LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. CD 1/7, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

▲† **Calif., Sacramento**—AIR BASE FACILITIES—BA 2/20—U. S. Eng., 1209 8th St., apron, stub parking and facilities and apron, operational and hydrant fuelling sys. at Mather Air Force Base, ENG-04-167-58-14. $3,000,000. CD 9/19.

† **Oregon**—BA 2/27—Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo. furnishing, del. f.o.b. cars Ashland,
Schedule 1, Item 1: Two battery chargers, designated BIC and BID.
Schedule 2, Item 2: One direct-current distribution board designated BLA.
Item 3: One alternation-current distribution board, designated DIA, with separately mounted instrument transformer compartment.
Schedule 3, Item 4: One CO 2 control cabinet, designated CLD for Green Springs Poerplant Talent Division, Rogue River Basin Proj., No. DS 5016, Ore. CD 9/17.

† **Idaho, Mountain Home**—DORMITORIES—BA 3/5—U. S. Eng., City-County Airport, Walla Walla, Wash., two 2 story, 40 x 205 ft., rein.-con. airmen's dormitories at Air Force Base, with high temperature hot water distr. sys., ENG-45-164-58-24. CD 8/24/56.

▲ **Calif., Los Angeles**—SPORTS ARENA—BA 3/12—Los Angeles Memorial Coliseum Comn., 3911 S. Figueroa St., constr. Los Angeles Sports Arena. $6,000,000. CD 4/25.

BUILDINGS—BA

▲ **Calif., Santa Ana**—JUVENILE HALL—BA 2/17—Orange Co. Employees' Retirement Sys., Courthouse, juvenile hall. $1,500,000. CD 7/6/56.

▲ **Calif., San Diego**—COURT HOUSE—BA 2/18—Bd. Supervs., San Diego Co., Court House, Civic Center, 1600 Pacific Hy., 7 story, 400,000 sq. ft. steel, rein.-con. court house. $10,713,713. Plans deposit $8. Extended date. CD 12/16.

Calif., San Francisco—FINE ARTS—BA 2/18—State Div. Architecture, 1120 N. St., Sacramento, 2 story, 26,500 sq. ft. rein.-con. Fine Arts Bldg. at San Francisco State College. $462,750. Plans deposit $50. CD 7/25.

▲ **Calif., Oakland**—OFFICE—BA 2/21—Henry J. Kaiser, 1924 Webster St., (selected list of bidders) 25 story, 3 bsmnts., 850,000 sq. ft. rein.-con. Kaiser Center Office Bldg., 2036 Webster St. $17,000,000. Extended date. Welton Beckett & Assocs., 153 Maiden Lane, San Francisco, archts. CD 12/13.

▲ **Utah, Price**—SCHOOL—BA 2/21—Carbon County School Dist., high school. $1,500,000. Ralph A. Edwards, 782 E. 21 St., Salt Lake City, archt. CD 2/28/57.

HEAVY CONSTRUCTION—LB & CA

ARIZONA—State Hy. Dpt., Phoenix, Bids opened 1/16, **W. J. Henson, Contractor,** P. O. Box 471, Prescott, Ariz. LB $479,839 (12 bidders), select mat. modified cement treated aggreg. base bit. mix (Class II-plant mix) and seal coat about 77 mi. north of Jct. of US Rte 66 and US Rte 89 east of Flagstaff and extends north over new alignment of US Rte 89 from approx. 3.4 mi. to the gap, Item No. 196 (b) AFE 8940 F 037 2 (3) Cameron Navajo Bridge Hy., Coconino Co. CD 1/3.

ARIZONA—State Hy. Dpt., Phoenix, Bids opened 1/3, **W. R. Skousen, Contr.,** P. O. Box 71, Mesa, Ariz. LB $81,065 (15 bidders), wid'n ex. roadway, incl. grading, draining, select material aggreg. base and bit. plant mix, beginning intersection of Tryon Av. and State Rte 84 east of Eloy and extends SE over State Rte 84 for 1.7 mi. to point near Jct. of State Rte 84 and State Rte 87, Casa Grande-Picacho Hy., Item No. 146, AFE 8413 F 014-1 Pinal Co. CD 12/20.

† **WASHINGTON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore.,
Commercial Iron Wks., Inc., 2021 S.E. Grand Ave., Portland, Ore., CA $445,114 (12 bidders), grading 4 mi. Lake Cushman road and constr. rein.-con. bridge over Lake Cushman, Mason Co. Bids Jan 21. CD 1/2.
Kuckenberg Constr. Co., 11104 N.E. Holman St., Portland, Ore. CA $758,183. (7 bidders), west side approach to Hawthorne Bridge, Multnomah Co., PORTLAND, ORE. Multnomah Co., Court House, Portland, Ore. Bids Jan. 19. CD 1/22, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento, Bids opened 1/22,
Isbell Constr. Co., Granite Constr. Co., Gordon H. Ball and Gordon H. Ball, Inc., P. O. Box 2351, Reno, Nev.

(Continued on page 86)

Another BUTLER FIRST!

WORLD'S MOST PORTABLE HIGH PRODUCTION READY MIXED PLANT

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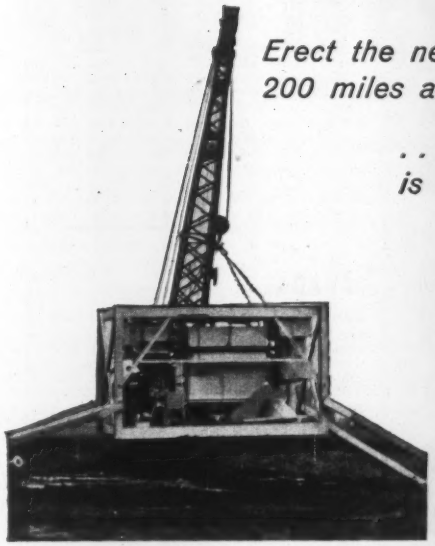

Erect the new Butler HP-85 at a job-site 200 miles away . . . or more

. . . And your Ready Mixed territory is NOW UNLIMITED!

200-*plus* yards an hour is capacity fully equivalent to a permanent Ready Mixed Concrete Plant. Yet the new BUTLER HP-85 is so highly portable it provides a ready mixed producer an extension of operating territory and a versatility in erection previously enjoyed only by a highway contractor.

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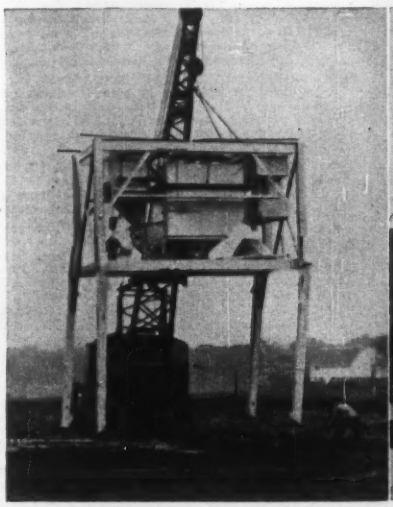
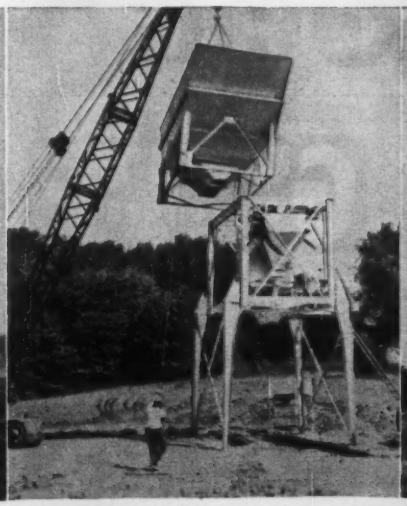
① Low bed trailers deliver the HP-85 to your new job site. Batchers are a complete unit with automatic controls, weighing equipment piping and wiring all in place . . . Here crane lifts batcher section. Support columns are hinged to batcher frame, swing into place as batchers are raised.

② Almost up. A minimum of field bolts hold columns securely.



③ Crane now lifts complete, compartmented bin section, places it over batchers.



④ Attach the elevator in one piece . . . And the BUTLER HP-85 is ready to go! You're *there* with 200-*plus* yards capacity.

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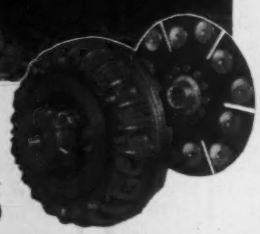

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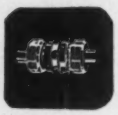
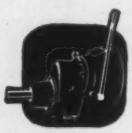


Oil or Dry Multiple Disc

Heavy Duty Over Center

Power Take-Offs



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(Continued from page 84)

LB $7,325,011, est. $9,450,000 (8 bidders), 6.7 mi. 4 lane divided hy. incl. ramps, access roads and connections between ½ mi. west of Boca and 0.8 mi. east of Floriston on US Hy. 40, Nevada Co. CD 11/29.

▲ **Peter Kiewit Sons Co. & Fred J. Early Jr., Co., Inc.,** 345 Kieways Ave., Arcadia, Calif. LB $2,620,000. effluent pumping plant at Hyperion Sewage Treatment Plant, LOS ANGELES, CALIF. City Council, City Hall, Los Angeles, Calif. Bids Jan. 22. CD 5/31/55.

† **Purchasing & Contg. Officer,** Maher Air Force Base, Sacramento, Calif., cancelled bids to have been opened Jan. 21, storm sewerage sys., Mather Air Force Base. Spec. MAB 13-58, SACRAMENTO, CALIF. $40,000-$50,000. Will re-advertise. CD 1/10.

Carvers Constr. Co., P. O. Box 484, Stockton, Calif. LB $399,400 (11 bidders) bulk loading facilities, Port of Stockton, STOCKTON, CALIF. Stockton Port Dist., Deep Draft Docks, Stockton, Calif. CD 2/7.

BUILDINGS—LB & CA

Leon Wheatley, Inc., 4133 El Camino Way, Palo Alto, Calif. LB $379,988, 3 story, wood frame, stucco DORMITORY, BELMONT, CALIF. College of Notre Dame, Ralston Ave., Belmont, Calif. Bids Jan. 17. CD 1/7.

▲ **Dinwiddie Constr. Co.,** 210 Crocker Bldg., San Francisco, Calif. LB $7,733,000, est. $5,000,000. (6 bidders) four 9 story RESIDENCE HALLS, BERKELEY, CALIF. Regents of University of California, Admin. Bldg., Berkeley, Calif. Bids Jan. 21. CD 1/2.

▲ **Crown Constr. Co.,** 5059 W. Pico Blvd., Los Angeles, Calif. LB $1,904,296. (8 bidders), Cleveland High SCHOOL, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro, Los Angeles, Calif. Bids Jan. 24. CD 1/7.

Affiliated Engineers & Contractors, P.O. Box 218, Florin, Calif. LB $173,500 (7 bidders) HEAT TREATMENT FACILITY at Nimbus Station, NIMBUS, CALIF. Aerojet-General Corp., Eng. Div., 10687 Folsom Blvd., Rancho Cordova, Nimbus, Calif.

CANADA

BUILDINGS—BA

Ont., Port Credit—SCHOOL—BA 2/10—South Peel Bd. Educ., Windy Oaks Dr., 1 and 2 story, cement block, brick veneer and poured concrete Junior High School, Ogden Ave. $500,000. Hanks, Irwin & Pearson, 2848 Bloor St. W., Toronto, archts. CD 9/23.

Ont., Toronto—BA 2/11—Campbell Soup Co. Ltd., First and Birmingham Sts., New Toronto, 1 story, 170x300 ft. fdn. to bedrock, steel frame, aluminum siding, 400 ft. bridge to adjoining bldg., plant extension, $500,000. Mathers & Haldenby, 10 St. Mary's St., archts. Wallace, Carruthers & Assocs., Ltd., 92 Yorkville Ave., engrs. CD 12/2.

Ont., Guelph—BIOLOGY—BA 2/26—Ontario Dpt. P. Wks., Parliament Bldgs., Toronto, 3 story, bsmnt. 130x300 ft. brick, stone trim, steel frame, Biology Bldg., Ontario Agricultural College, Over $350,000. Wm. R. Souter & Assocs., 36 James St. S., Hamilton, archts. Wagner, McCargar & Filer, 42 James St. N., Hamilton, engrs. CD 8/19.

BUILDINGS—LB & CA

Claydon Co. Ltd., 290 Garry St., Winnipeg, Man., LB $80,486, BLDG. 16, alterations and addns., Constr. Demountable A. T. C. Accommodation BLDG., at Winnipeg Airport, WINNIPEG, MAN. Dpt. Transport, Hunter Bldg., Ottawa, Ont. CD 5/3.

NOVA SCOTIA—Dpt. Hys. & P. Wks., Parliament Bldgs., Halifax,

Municipal Spraying & Contg. Ltd., 1350 Barrington St., Halifax, N. S., CA est. $300,000, grading, base course and paving three sections of roadway, Yarmouth Co.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,

Peel Constr. Co. Ltd., Hy. 7 West, Brampton, Ont., LB $835,738 (11 bidders), Contr. 57-220, gran. base and c. conc. paving 3.9 mi. Hy. 401, from Etobicoke Creek to Hy. 10, Etobicoke, ONT. Bids Jan. 22. CD 12/12.

Scott-Jackson Constr. Ltd., 215 North Queen St., Toronto, Ont., LB $248,300 (9 bidders) constr. 36 in. water main in Bloor St., from West of Eisfield Rd. to east of Kipling Ave., TORONTO, ONT. Municipality of Metroplitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Jan. 20, CD 1/13.

Charles Duranceau Ltee, 2545 Jasques Hertel St., Montreal, Que. CA $962,899 (18 bidders) Dickson St. Bridge over Canadian National Ry. tracks, north of Notre Dame St. E., MONTREAL, QUE. City, City Hall, Montreal, Que. Awarded Jan. 20. CD 12/27, under LB.

BUILDINGS—LB & CA

▲ **Procon (Canada) Ltd.,** 40 Advance Rd., Toronto, Ont., CA $1,500,000 (5 bidders) a unifiner and a platformer at REFINERY, ST. BONIFACE, MAN. North Star Oil Ltd., 526 Panet Rd., St. Boniface, Man. Bids Nov. 30, awarded Jan. 20. CD 11/27.

▲ **E. G. M. Cape Co. (1956) Ltd.,** 79 Scollard St., Toronto, Ont., CA $1,000,000, Freezer PLANT, Bothwell St., CHATHAM, ONT. Interprovincial Freezers Co. Ltd., 32 Front St. W., Toronto, Ont. Awarded Jan. 17.

Wingold Contr. Co. Ltd., 25 Wingold Ave., Toronto, Ont., CA $250,000, 1 story, 122 x 249 ft., structural steel, brick and block walls, FACTORY AND OFFICE BLDG., concrete block fdn., Manville Rd. near Sherry Rd., TORONTO, ONT. International Parts (Canada), 763 Warden Ave., Toronto, Ont. Awarded Jan. 20.

(Continued on page 88)

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(Continued from page 86)

Jardins St. Georges Ltd., 13,000 Notre Dame St. E., Pointe aux Trembles, Montreal suburb, Montreal, Que. Owner Builds, $500,000, 1 and 2 story, 100 x 600 ft., brick walls, rein.-con. frame, SHOPPING CENTER, incl. 15 stores, bank, concrete fdn., Notre Dame St. E., near 25th Ave., MONTREAL, QUE.

▲ **Brandon Constr. Inc.**, 3780 Fleury St. E., Montreal, Que., Owner Builds, $3,900,000, HOUSING, Pointe aux Trembles, Montreal suburb, MONTREAL, QUE.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Girdler Construction Div., National Cylinder Gas Co.**, 222 E. Broadway, Louisville 1, Ky., U.S.A., CA design and construct, hydrogen sulphide plant for ore processing, Moa Bay, CUBA. Cuban American Nickel Co. sub. Freeport Sulphur Co., 161 E. 42 St., New York, N. Y., U.S.A.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲ Bids are being taken on the following project under International competitive bidding of NATO

TURKEY

T. C. Nafa Vekaleti, Hava Msydanlari ve Akaryakit Tesisleri, Insaat Reisligi, Ataturk Bulvari, 222 Kavaklidere-Ankara. — Runway rehabilitation, runway exten. and shoulder stabilization at Balikesir and Bandirma airfields, $1,632,000. Firms interested in bidding must signify by Jan. 31 and submit complete qualifications by Dec. 31. U. S. firms not already certified to participate in NATO work should send a resume of their qualifications to BFC's trade Development Division, Bureau of Foreign Commerce, U. S. Dpt. Commerce, Wash. 25, D. C.

FOREIGN

HEAVY CONSTRUCTION—BA

Iraq—BA 4/14—Development Bd. and Ministry of Development of Govt. of Iraq, Baghdad, Contract 1B, supply, delivery, erection and supervision of operation of 28 power transformers and accessories ranging from 50 KVA to 25 MVA for Baghdad—South Power Station and seven sub-stations in Central Euphrates Zone; adv. ENR 2/6.

Iraq—BA 6/1—Baghdad Sewerage Bd., Baghdad, first stage of Baghdad Sewerage Scheme, incl. Contr. IA, first stage of Solada Sewage Treatment works, incl. pumping stations, settlement tanks, channels, outfall, sludge digestion tanks, power house and auxiliary works. Contr. Ib, approx. 11 Km. trunk sewers between 1.85 m. and 2.3 mi. diam. 14 sewage pumping stations, 0.6 mi. and 0.75 mi. diam. sewers, assoc. pumping mains; Contr. IC, approx. 170 Km. pipe sewers between 22.5 cm. and 45 cm. diam.. together with assoc. pumping mains, laterals for house connections and auxiliary works. Plans deposit I.D.20 ($56). John Taylor & Sons, Artillery House, Artillery Row, London, S.W. 1, England, and 464 Alwiyah, Baghdad, Iraq, consult. engrs.; adv. ENR 2/6.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Mountain View**—City, City Hall, voted bonds Jan. 14, water distr. sys. expansion. $2,500,000. CD 11/19.

SEWERS, WASTE DISPOSAL

▲ **Calif., Mountain View**—City, City Hall, voted bonds Jan. 14, sewage disposal facilities, $200,000; sanitary sewers. $2,000,000; storm drainage $1,000,000. CD 11/19.

▲ **Wash., Tacoma**—City, City Hall, $2,775,000 bond election Mar. 11, improve, extend storm drainage sys. in West End and elsewhere. CD 1/28.

BRIDGES

▲ **WASHINGTON AND OREGON**—Washington Toll Bridge Auth., Olympia, Wash. and Oregon State Hy. Comn., Salem, Ore.,

Klickitat Co., Wash. and Sherman Co., Ore.—bridge over Columbia River at Biggs Rapids from Goldendale, Klickitat Co., Wash. to Biggs, Sherman Co., Ore. $3,428,500.

▲ **Wash., Tacoma**—City, City Hall, bond election Mar. 11, bridge on Yakima Ave. across Wakefield Dr., $2,000,000; replace M St. bridge, $200,000, CD 12/27.

STREETS AND ROADS

▲ **Calif., Mountain View**—City, City Hall, voted bonds Jan. 14, street imprvs. and bridge. $2,725,000. CD 11/19.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Haverhill—hy. work Rte. 110, Haverhill to Salisbury, Approx. $120,000, Bids late in 1958.

Kingston-Plymouth—hy. work, Rte. 3, $2,400,000, Bids last of March 1958.

Lakeville-Taunton—hy. work, Rte. 140, $2,500,000, Bids in April.

Medford—hy. reconstr. Rte. 28, Over $200,000, Parsons, Brinckerhoff, Hall & McDonald, 51 Cornhill, Boston, Mass., engrs., Bids April-May.

Norton—hy work, Rte. 123, $100,000, Bids in February.

Swansea—hy. work, Baptist St., Rte. 136, $155,000. Bids last February.

Westport—hy. work and development, $4,000,000, Charles A. Maguire & Assoc., 14 Court St., Boston, Mass., engr., Bids late in 1958. CD 10/10/56.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Allegheny Co.—6.36 mi. L.R. 330-12, from NW of West Elizabeth Boro to south of S. Baldwin Boro, 4 lane divided hy. $1,141,346.

7.92 mi. L.R. 72-12 from South Boro to Tpke Interchange at Butler Valley, 4 lane divided hy. bridge over Pine Creek. $1,443,803.

Armstrong Co.—2.96 mi. 2 lane road, L.R. 71-R2, Worthington By-pass, incl. bridge over Buffalo Creek. $1,158,466.

Butler Co.—6.82 mi. 4 lane divided hy. Butler By-pass, U. S. 422 north of Butler City, L.R. 71-R3. $1,312,549.

Westmoreland Co.—4.48 mi. L.R. 69-18 from 0.2 mi. of L.R. 187 northward to 1.4 mi. south of L.R. 228, 2 lane and 4 lane divided hy. with grade separation. $798,942. S. P. Longstreet, c/o owner, ch. engr.

EARTHWORK, WATERWAYS

▲ **California**—Santa Cruz County Flood Control & Water Conservation Dist., c/o County Council, Santa Cruz, dam, reservoir and spillway and outlet works on Newell Creek, Santa Cruz, San Lorenzo Valley and Scotts Valley Areas, Santa Cruz Co. $1,100,000.

AIRPORTS

▲ **Ill., Chicago**—AIRPORT—Trans-World Airlines, 1735 Baltimore, Kansas City, Mo., hangar bldg. and paving, O'Hare Airport, Park Ridge. $5 C00,000. CD 12/3.

▲ **N. Y., Idlewild**—AIRPORT—Port of New York Authority, 111 8th Ave., New York, Zone 11, plans by Ero Saarineen & Assocs., W. Long Lake Rd., Bloomfield Hills, Mich., terminal for Trans World Airlines, Inc. at International Airport. $5,000,000. Ammann & Whitney, 111 8th Ave., New York, structural engrs. Jaros, Baum & Bolles, 415 Lexington Ave., New York, mech. engrs. CD 2/25/53.

PUERTO RICO

▲ **Puerto Rico**—Caribe Mills, Inc., Sub. Nebraska Consolidated Mills, 314 S. 19 St., Omaha, Neb., plans flour mill at Cantano, San Juan Harbor. $3,000,000.

FOREIGN

▲ **Thailand**—Royal Irrigation Dpt. of Thailand, Bangkok, plans Yanhee Hydro-electric Project on Ping River in Northwestern Park of Thailand. $100,000,000. Engineering Consultants, Inc., 1940 W. Mississippi, Denver, Colo., U.S.A., consult. engr.

PUBLIC BUILDINGS

▲ **Ala., Auburn**—APARTMENTS—State Polytechnic Institute, Auburn, 240 apartments for married students, $2,000,000. CD 12/27.

▲† **Calif., Lemore** — **NAVAL BASE — P. Wks. Office**, Twelfth Naval Dist., San Bruno, Naval Base Development, $8,000,000 appropriated.

▲ **Calif., Long Beach**—DORMITORIES—State Div. Architecture, P. Wks. Bldg., 1120 N St., Sacramento, two 3 story dormitories, Long Beach State College $1,650,160. CD 7/24.

▲ **Calif., Los Angeles**—OFFICE GARAGE—State Div. Architecture, 1100 S. Grand Ave., office garage for Dpt. Finance $1,595,000. CD 7/25.

▲ **Calif., Los Banos**—SCHOOL—Los Banos Union High School Dist., c/o Supt., P. O. Box 112, bond Eelection Feb. 25, high school. $1,500,000. Donald F. Haines, 2015 Pacific Ave., Stockton, archt.

▲ **Conn., Norwalk**—SCHOOL—Town of Norwalk, Town Hall, plans by Lyons & Mather, 211 State St., Bridgeport, Brian McMahon High School, $3,855,250. Paul D. Harrigan, 909 Whalley Ave., New Haven, consult. engr. Howard W. Harper, 1429 Mill Hill Rd., Southport, electrical engr. Jo Ray, East Meadow Rd., Westport, site planner. CD 3/18.

▲ **D. C., Wash.**—HOUSING—National Capital Housing Auth., 1729 New York Ave. N. W., plans by Keyes & Lethbridge, 1300 Connecticut Ave. N. W., 174 unit housing at Morton St. N.W., vicinity of Park Rd., DC 1-34, $1,740,000. CD 8/13.

▲ **Ga., Marietta**—CIVIC-COUNTY CIVIC CENTER—City of Marietta-Cobb Co. Bd. Comr., City Hall, plans by Richard Nash, Marietta, city-county civic center. $8,000,000-$10,000,000.

▲ **Ill., Highland Park**—SCHOOL—Highland Park Twp. School Dist. 113, 433 Vine Ave., plans by Loebl Schlossman & Bennett, 333 N. Michigan Ave., Chicago, high school, Waukegan Rd. W. of Park Ave., Bannockburn, $4,000,000.

▲ **Ill., Urbana**—RESIDENCE HALL, etc.—University of Illinois, Urbana, residence hall for men, $7,250,000., Bids in July; addn. to Illinois Union Bldg., $5,000-000, Bids in August; student services bldg., $2,000-000, Bids in August; residence hall, $1,350,000, Bids in July; physics bldg., $2,000,000 120 unit family housing, $1,080,000, addn. to stock pavilion, $350,-000, power plant turbine, $840,000, addn. to utility distribution system, $780,000, all foregoing, Bids in February. CD 3/18/53.

▲ **Ind., Indianapolis**—HOME FOR AGED—Comrs. Marion Co. Court House, plans by Boyd E. Phelps, Inc., K of P Bldg., Home for Aged for 147 patients; remodel old wing to hold another 200 persons; new residence bldg. to house 93 employees, Julietta, near here. $2,250,000, CD 6/3.

▲ **Kan., Mission**—SCHOOL—Shawnee-Mission High School Dist., c/o Howard McEachen, 7401 Johnson Dr., plans by Perkins & Will, 309 W. Jackson, Chicago, Ill. and Voskamp & Slezak, 18 E. 11 Kansas City, Mo., Broadmoor Junior High School, 83 and Broadmoor St., Overland Park. $1,700,000.

▲ **Md., College Park**—EDUCATION CENTER—Maryland University, College Park, plans by Alvin Aubinoe, 1515 19th St. N.W., Wash., D. C., Adult Education Center. $2,500,000. Funds are available for start of project.

▲ **Mich., Madison Heights**—SCHOOL—City, Foster Williams, supt. Schools, $1,000,000 bond election May 18, high school, 11-Mile Rd. between Lorenz and Couzens. $1,500,000. George D. Mason & Co.; 409 Griswold, Detroit, archts. CD 11/25.

▲ **Minn., Mankato**—SCHOOL, etc. —Bd. Educ., Consolidated School Dist. No. 71, c/o clerk. $3,600,000 bond election March 4, (1) high school addn. (2) 2 new elementary schools and addn. to 2 smaller schools. Pass, Rockey & Church, Mankato, archts. CD 11/17/55.

▲ **Miss., Jackson**—SCHOOL—City, School Bd. plans by R. W. Naef, Jackson Junior High School. $1,000,000. Post & Witty, structural engrs., Hamilton, Schultz & Luke, mechanical engrs., Granberry H. Ward & Assocs., electrical engrs., and Ken Bottorf, landscape engr., all Jackson, Miss. CD 7/28/54.

▲ **Mo., Kirkwood (St. Louis 22 P. O.)**—SCHOOLS—Kirkwood School Dist. R-7, Alva L. Crow, supt. Schools, 516 S. Kirkwood Rd., Zone 22, $1,500,000. bond election Feb. 11, schools. CD 2/19/56.

▲ **O., Bay Village**—SCHOOLS—Bay Village Bd. Educ., 502 Cahoon Rd., bond election May 6, schools. $1,475,-000.

▲ **O., Cincinnati**—UNEMPLOYMENT BUREAU—Dpt. P. Wks., State of Ohio, Columbus, plans by Sullivan-Issaca-Sullivan, 1800 Reading Rd., Reading, 3 story, bsmnt., 45,000 sq. ft. brick, rein.-con. Unemployment Comp. Bureau Bldg. $1,000,000.

▲ **O., Plainfield**—SCHOOL—Bd. Educ., Three Rivers Local School Dist., bond election May 6, Centralized High School, some imprvs. to present bldgs. $1,300,-000.

▲ **Tex., Andrews**—SCHOOL—Andrews Ind. School Dist. plans by John Lyon Reid & Partners, archts.-consult. engrs., 1019 Market St., San Francisco, Calif., high school. $2,000,000. CD 1/16.

▲ **Tex., Denton** — INDUSTRIAL ARTS, etc. — North Texas State College, c/o Dr. J. C. Matthews, pres., plans by Wilson, Patterson & Assocs., 601 Bailey, Fort Worth, constr. (1) Industrial Arts, $800,000 (2) Physics-Mathematics, $600,000 (3) School of Business, $1,000,000. CD 11/7.

▲ **Wash., Tacoma**—SCHOOLS—City, City Hall, $2,813,-000 bond election Mar. 11, schools.

▲ **Wis., Milwaukee**—ADMINISTRATION—Bd. School Directors, 1111 N. 10 St., Zone 3, plans by Grassold, Johnson & Assocs., 734 N. Jefferson St., Zone 2, administration bldg. $1,500,000. CD 4/8.

▲ **Wis., Wauwatosa**—SCHOOL—Bd. Educ., 1732 Wauwatosa Ave., Zone 13, plans by Eschweiler & Eschweiler, 720 E. Mason St., Milwaukee, Zone 2, Whitman Junior High School, $2,500,000. Constr. 1959.

▲ **Sask., Moose Jaw**—POST OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by Stock, Ramsey & Assocs., 2041 Hamilton St., 2 story, bsmnt., 160 x 250 ft. post office, Ross St. W. $1,000,000. CD 4/5/55.

COMMERCIAL BUILDINGS

▲ **Calif., Ignacio**—MOTEL—Redwood Gateway Development Co., c/o Gordon A. Phillips, archt., Masonic Bldg., San Rafael, motel and swimming pool, on Hy. 101 near Hamilton Air Force Base. $2,000,000.

▲ **Conn., Hartford**—OFFICE—Phoenix Mutual Life Insurance Co., 79 Elm St., office bldg. $1,000,000.

▲ **D. C., Wash.**—EMBASSY—Iranian Embassy, 3005 Massachusetts Ave. N.W., plans by Howard S. Patterson & Francis Keally, 17 E. 49th St., New York, N. Y., 1½ story, brick, stone Embassy Bldg., 3005 Massachusetts Ave. N.W. $1,000,000.

▲ **Ind., Valparaiso**—DORMITORY—Valparaiso University Bd. Trustees, Valparaiso, plans by Edward F. Jansson, 740 N. Rush St., Chicago, Ill., 4 story, part bsmnt., Y shaped brick, concrete dormitory, n.e. corner of East Campus. $1,000,000. CD 1/17.

▲ **Ky., St. Mathews**—STORE—Sears Roebuck Co., S. State and Van Buren, department store on 8 acre site, Shelbyville Rd. corner Thurman Lane. $1,000,-000.

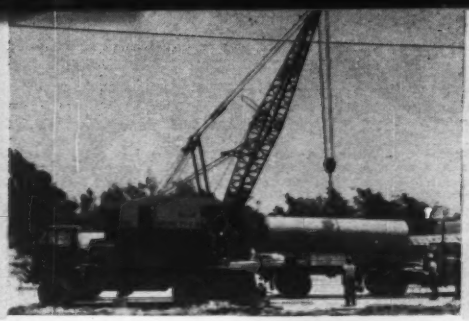
▲ **Mass., East Boston**—MOTEL-HOTEL—Hotel Loganaire, Inc., 25 Pemberton Sq., Boston, plans by Abbott Engineering, Inc., designer, 131 State St., Boston, motel-hotel, Jeffrey St. $1,000,000.

▲ **Mass., Medford**—DORMITORIES—Tufts University, Bd. Trustees, c/o President's Office, Medford, plans by Perry, Shaw, Hepburn & Dean, 31 St. James Ave., Boston, two dormitories. $1,500,000.

▲ **Mo., Kansas City**—MOTEL—Prom Investment Co., c/o Abe Yeddis, 7500 E. 12th, Kansas City, Mo., plans by Voskamp & Slezak, 18 E. 11, Kansas City, Mo., motel. $1,000,000. Bids probably in March. CD 12/4, under LB.

▲ **N. J., Madison**—APARTMENTS—Barva Co., Inc., Woodlawn Ave., Summit, 2 story, 96 unit brick air-

(Continued on page 90)



CALIFORNIA—Near Culver City this 30-B Transit Crane handles 48-in. ID concrete pipe for a new water line. The 7-mile system is being constructed to carry Colorado River water to Culver City. Work is maintained at a steady clip despite heavy traffic along a route that includes 14 tunnels from 40 to 300 feet in length. Working with the 30-B are a Bucyrus-Erie 22-B equipped with clamshell and Bucyrus-Erie 38-B hoe.

These Contractors Are Using 30-Bs to Turn Jobs into Profits . . . You Can Too!

More and more contractors throughout the country are making money with new Bucyrus-Erie 30-Bs on their jobs. These men profit from the 30-B's air controls for smooth, big output working cycles; easy servicing and automatic lubrication of many parts that provides more working time; large, cool running clutches and brakes that mean constant response to coordinate every machine function.

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VIRGINIA—The owner liked the performance, economy, and dependability of his 22-B shovel so well that he decided to buy this 30-B dragline. He uses the new machine to remove overburden of dirt from a sand and gravel deposit near Annadale, Va. The dragline also loads sand and gravel into trucks for hauling to road and parking lot construction sites.

MINNESOTA—Equipped with 70-ft. boom, this 30-B dragline excavates in the yard of a paper company in Brainerd. This machine removes sand and clay for the installation of new papermaking equipment. The 30-B was also used to set steel on new plant construction.

WASHINGTON—This 30-B hoe does double duty for its owner during installation of a 15,000-ft. water line for the city of Tacoma. After digging a section of 5-ft. deep trench—and without any change of front ends—the 30-B lowers a section of pipe into the excavation. Trenching is through hard pan, rock, and clay. Not shown but working on the same job is a Bucyrus-Erie 38-B hoe.

CONNECTICUT—Teamed up with a Bucyrus-Erie 22-B shovel, this 30-B dragline dredges sand and gravel to create a 7-acre lake for a housing project near Norwalk. This lake, a narrow stream before the project started, has been enlarged by the removal of over 100,000 yards of material. As the 30-B spoils the material, the 22-B loads it to trucks for removal to another location, where it is stockpiled for use on the owner's other contracts.

(Continued from page 88)

conditioned apartments, 47 Green Village Rd. $1,000,000.

▲ **N. Y., New York**—OFFICE—Joseph P. Blitz, Inc., 545 Madison Ave., Zone 22, plans by Emery Roth & Son, 575 Madison Ave., Zone 22, 14 story office bldg., 475 Fourth Ave. $1,000,000.

▲ **N. Y., New York**—OFFICE—Joseph P. Blitz, Inc., 545 Madison Ave., New York, Zone 22, plans by Emery Roth & Son, 575 Madison Ave., Zone 22 office bldg. 6th Ave. and 52 St. $1,000,000. CD 2/8/56.

▲ **N. Y., New York**—APARTMENT—Carol Management Corp., 12 E. 48 St., Zone 17, plans by Philip Birnbaum, 12 E. 48 St., Zone 17, apartment, 210 Central Park South. $1,000,000. CD 11/8.

▲ **N. Y., New York**—OFFICE—Joseph Durst, 205 E. 42nd St., Zone 1, plans by Emery Roth & Sons, 575 Madison Ave., Zone 22, office bldg., 733 Third Ave., corner 46th St. $1,000,000.

▲ **N. Y., New York**—OFFICE—Equitable Life Assurance Co., 393 7 Ave., New York, Zone 1, plans by Skidmore Owings & Merrill, 425 Park Ave., Zone 22, 37 story office bldg. on west side of Avenue of Americas, between 51 and 52 Sts. at 1281 Avenue of Americas. $6,000,000.

▲ **N. Y., New York**—OFFICE—Hanover-Beaver Corp., c/o Henry G. Greene, archt., 855 Sixth Ave., Zone 1, 27 story office bldg., 66 Beaver St. $2,000,000.

▲ **N. Y., New York**—OFFICE—Francis J. Kleban, 430 Park Ave., Zone 22, plans by Emery Roth & Sons, 575 Madison Ave., Zone 22, office bldg., 410 Park Ave. $1,000,000.

▲ **N. Y., New York**—APARTMENTS—M. G. W. Inc., c/o Samuel Paul, archt., 89-51 164 St., Jamaica, two 9 story apartment bldgs., Fieldstone Rd., Sec. of W. 256 St. $2,100,000.

▲ **N. Y., New York**—APARTMENT—N. W. Bldg. Corp., 369 E. 149 St., Zone 51, plans by H. Herbert & Clarence Lilien, 201 W. 72 St., Zone 23, 6 story apartment, Vireo Ave. and McKean Ave. $1,200,000.

▲ **N. Y., New York**—OFFICE—Pack Medical Foundation, 139 E. 36th St., Zone 1, plans by Thomas Ellerbe, First Natl. Bank Bldg., St. Paul 1, Minn., 12 office bldg., 277 Lexington Ave., for medical uses only. $1,000,000.

▲ **N. Y., New York**—APARTMENT—Joseph Sager & Sons, 141 E. 55 St., Zone 22, plans by Greenberg & Arnes, 303 Fourth Ave., Zone 10, 21 story apartment, 578-86 Third Ave., northwest corner of 38 St. $1,500,000.

▲ **N. Y., New York**—APARTMENT—Jacob Schneider, 16 Court St., Brooklyn, Zone 2, plans by Kavy & Kavovitt Inc., 44 Court St., Zone 2, 6 story apartment, east side of Blackstone Ave., north of 239th St., $1,116,000.

▲ **N. Y., New York**—OFFICE—Uris Bros., 300 Park Ave., Zone 22, plans by Emery Roth & Sons, 575 Madison Ave., 38 story office bldg., 850 Third Ave. $2,000,000.

▲ **Pa., Phila.**—APARTMENT—Bryn Mawr Ave. Apartments, Inc., c/o John H. Graman & Assoc., archts., 2430 Pennsylvania Ave. N.W., Wash. D. C., apartment Bryn Mawr Ave. $1,500,000.

▲ **Tenn., Nashville**—SHOPPING CENTER—James, Norman and Frank Binkley, c/o George D. Waller & Sons, archts., 817 16 Ave. S., shopping center with 200,000 sq. ft. parking lot. $1,000,000.

▲ **Tex., Houston**—SHOPPING CENTER, etc.—Russell W. Nix, Developer, 6407 Harrisburg St., plans by Irving R. Klein & Assocs., 1317 Austin St., shopping center, Section No. 1, $3,000,000; shopping center Section No. 2, $2,000,000, 30 acre tract by Wesleyan, Montrose Rd. and Academy.

▲ **Tex., Houston**—COLLEGE—Union Baptist Assn., 2420 Milam, college. $3,000,000. site purchased. CD 9/21/53.

▲ **Tex., Midland**—SHOPPING CENTER—Houston Smith, 109 S. Grand, Odessa, plans by Gordon C. McCutchan, 2310 W. Ohio St. shopping center. $2,000,000. CD 1/16.

▲ **Tex., Port Lavaca**—RESIDENCES—Dolere Constr. Co., c/o Fred J. Novak, Jr., 602 Verne St., Box 10027, Terrell Wells Station, San Antonio, plans by DeVerne Kittles, archt. and land planning consult., 523 W. Hildebrand, 250 residences. $2,375,000.

▲ **Wash., Midway**—HOUSES—Rigby Development Co., 4304 S. 178 St., Seattle, 170 houses, S. 252 St. and Hy. 99 S., in Salt Air Hills. $2,000,000.

▲ **Alta., Edmonton**—OFFICE—Owner, c/o C. T. Larrington, archt., 10123-112th St., 9 story, 100x150 ft. rein.-con. office bldg., 100th St. $1,500,000.

▲ **Ont., Niagara Falls**—HOUSING—River Realty Development Co., 1846 Glenholme Ave., plans by R. Blake Erwin, 2222 Murray St., Niagara Falls, Housing Development, Niagara Parkway, Willoughby Township. Over $1,000,000.

▲ **Sask., Saskatoon** — DEPARTMENT STORE — Ruperts Land Trading Co. Ltd., 79 Main St., Winnipeg, Man., plans by Moody & Moore, 295 Broadway, Winnipeg, Man., 3 story, bsmnt., 140x300 ft., rein.-con. Department Store addn. $3,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., South San Francisco**—INDUSTRIAL TRACT—Owner, c/o Louis Poletti (representative) 306 Palomar Ct., San Bruno, industrial tract between Airport Blvd. and Bayshore Freeway (13 industrial concerns). $3,000,000.

▲ **Colo., Denver**—FACTORY—Bowman Biscuit Co., United Biscuit Div., 842 Walnut St., plans by Rust Eng. Co., consult. engr.-archts., Rust Bldg., 2316 4th Ave. N., Birmingham, Ala., and P. O. Box 5450, T-A, Denver 17, Colo., factory bldg. on 42 acres, West 48th and Osage Sts. $8,000,000. CD 11/13.

▲ **N. Y., New York**—GARAGE, etc.—Irving Maidman, 1501 Broadway, New York, plans by C. Gould de Neergaard, 622 W. 130 St., 10-level garage and 1 story office bldg. 311-13 and 308-10 42 Sts., southwest corner of 8th Ave. and 42 St. $3,000,000.

▲ **Tex., McGregor**—PLANT—Astrodyne, Inc. (owned by Phillips Petroleum Co. and North American Co.) McGregor, plant for producing energy solid fuels, propellants and devices for use in rockets and missiles. Est. $2,000,000.

▲ **Wis., Milwaukee**—TERMINAL, etc.—Milwaukee Hotel Center, 1131 W. State St., plans by J. Ray Lamboy, 5120 W. Blue Mound Rd., hotel, store, office and bus terminal bldg., N. 6 and 7 Sts., W. Wisconsin and W. Michigan Aves. $11,000,000, M. M. Schwarz, 2709 W. Roosevelt Dr., Chicago, Ill., archt. W. S. Arrasmith, Madrid Bldg., Louisville, Ky., assoc. archt. CD 8/22/56.

UNCLASSIFIED

▲ **Colo., Rangeley**—ELECTRIC POWER PLANT—Moon Lake Electric Assn., Vernal, Utah, power plant addn. $4,000,000. Application made to R. E. A. for loan. C. H. Guernsey & Co., 2701 North Oklahoma, Oklahoma City, Okla., consult. engrs.

▲ **Colo., Denver**—RECREATION AREA—Jewish Community Center, 1475 Williams, 3 story, 70,000 sq. ft. Recreation Area, E. Alameda Ave. between S. Dahlia and S. Elm Sts. $1,500,000.

▲ **N. Y., Brooklyn**—SHIP TERMINAL—Moore-McCormack Lines, Inc., 5 Broadway, New York, N. Y., four berth, 232x1,390 ft. ship terminal, 23 St. at present Piers B and C, Gowanus Canal. $6,500,000.

▲† **Washington**—TRANSMISSION LINE—Bonneville Power Admin., P.O. Box 3537, Portland, Ore., 345,000 volt transmission line from Rocky Reach Dam on Columbia River to Maple Valley. $4,367,000. Work may start in fall.

▲ **Que., Montreal**—RECREATIONAL CENTRE—City, City Hall, plans by Larose & Larose, 8 Roselawn Crescent, Town of Mount Royal, Montreal suburb, recreational centre at Parc des Conseillers, Chemin de Cote St. Paul, incl. indoor swimming pool, gymnasium and recreation hall, $1,200,000. Bids soon. CD 6/23/53.

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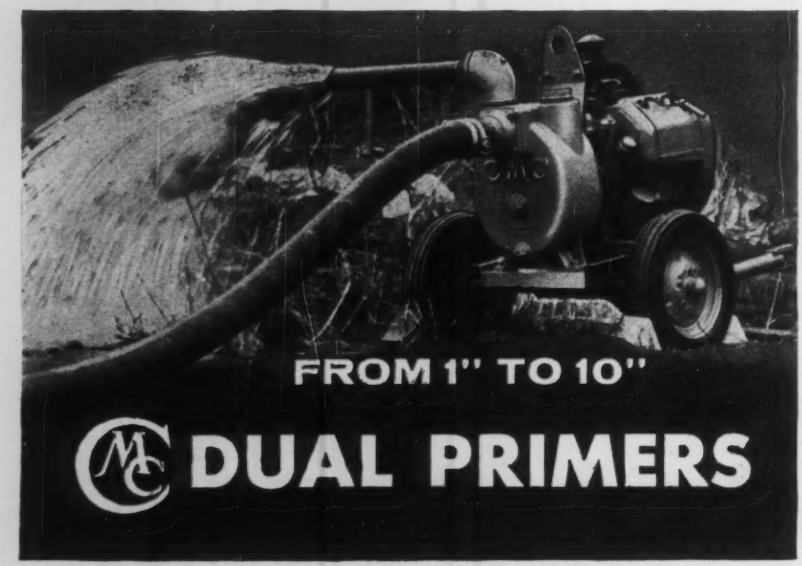

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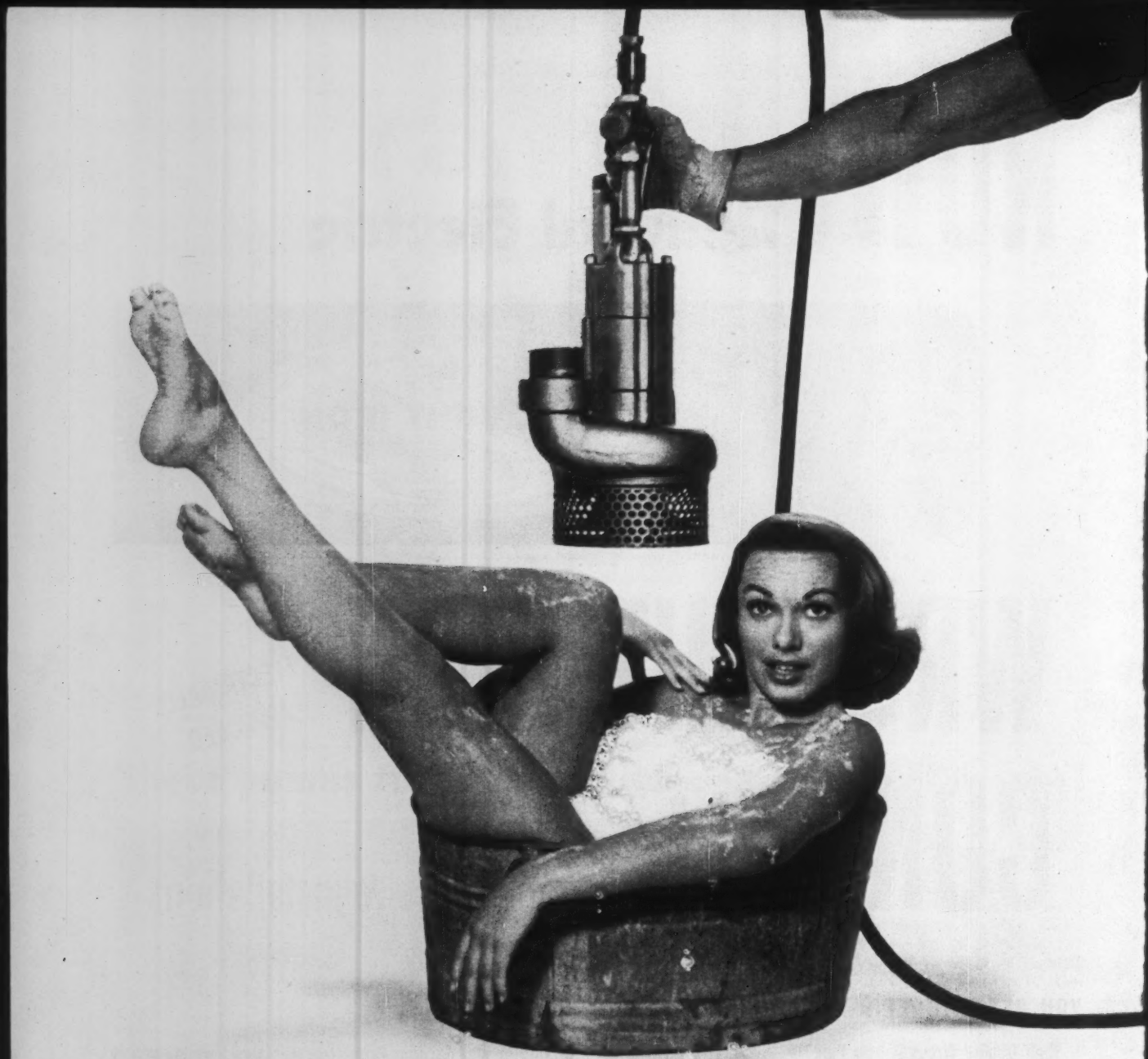

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 17 Connecticut February 19 Rhode Island
STREETS AND ROADS
February 17 Connecticut February 25 Massachusetts

Mass., Northampton—BA 2/24—City, Bd. Sewer Comrs., City Hall, sewage treatment plant. Extended date. $850,000. Plans deposit $75. Morgenroth Assoc., Inc., 294 Washington St., Boston, engr. CD 1/3.

BUILDINGS—BA

▲ **Mass., Whitman**—SCHOOL—BA 2/20—Towns, Whitman and Hanson, Regional High School Bldg. Comn., c/o Supt. Schools, Whitman Ave., Whitman, Regional High School, off Franklin St. $2,000,000. Plans deposit $100. Korslund, LeNormand & Quann, Inc., 506 Washington St., Norwood, archt. CD 12/9.

▲ **N. H., Portsmouth**—HOUSING—BA 2/27—Portsmouth Housing Auth., 25 Vaughan St., housing, Proj. NH 4-1, Gosling Rd. and Wood Ave. $1,750,000. John D. Betley, 944 Elm St., Manchester, archt. Goldberg-LeMesseurier Assoc., 669 Boylston St., Boston, Mass., structural engrs. CD 4/24.

▲ **Mass., Springfield**—SCHOOL—BA 3/4—R. C. Diocese of Springfield, Chancery Office, 68 Elliot St., cathedral high school, Proj. 56-886, between Westover Rd. and Roosevelt Ave. $5,000,000. Eggers & Higgins, 100 E. 42 St., New York, N. Y., archts. CD 1/6, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Mass.—**M. Dematteo Constr. Co.**, 200 Hancock St., Quincy, Mass. LB **$7,087,883**, est. $8,359,542, J. F. Fitzgerald Expressway, incl. interchange near South Bay-Union Park St. to Mass. Ave., Section P-J, FAP No. U-354 (2), Boston.
Mass.—**Warner Bros. Inc.**, Sunderland, Mass. LB **$1,378,439**, est. $1,801,062, hy. reconstr. relocation Rte. 9 F 44 (5) Cummington. Bids Jan. 28. CD 1/3.

BUILDINGS—LB & CA

H. Champagne & Sons, 37 Christopher St., Aldenville, Mass., Separate Contracts, Approx. **$800,000**, 50 HOUSES between Granby Rd. and Leona St., CHICOPEE, MASS.

J. B. Lowell, Inc., 173 Grove St., Worcester, Mass., CA **$857,480**, Olin Hall PHYSICS BLDG., West St., WORCESTER, MASS. Worcester Polytechnical Institute, Institute Rd., Worcester, Mass. Rogers & Butler, 219 E. 44th St., New York, N. Y., archts. Bids Jan. 15. CD 12/20.

▲ **General Electric Co.**, River Rd., Schenectady, N. Y., CA est. **$36,000,000**, install 5 turbo generators in POWER PLANT, EVERETT, MASS. Boston Edison Co., 39 Boylston St., Boston Mass. To be installed 1958-59.

▲ **Louis Marion & Son**, 100 Textile Ave., Lowell, Mass., LB **$1,226,200** E-812, INDUSTRIAL RESEARCH BLDG., Lowell Technological Institute, LOWELL, MASS. Commonwealth of Mass., Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Jan. 24. CD 12/27.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 27 New York
STREETS AND ROADS
February 17 New Jersey February 18 Maryland

▲† **D. C., Wash.**—BA 3/19—Office of Architect of Capitol, U. S. Govt., U. S. Capitol, Wash., D. C., excavation, the excavation bracing system, the foundation piles, the pile caps and incidentals for foundations for addnl. office bldg., for United States House of Representatives. Plans deposit $150.

BUILDINGS—BA

▲ **D. C., Wash.**—HOUSING—BA 2/11—National Capital Housing Auth., 1729 New York Ave. N.W., 183 dwelling units, Housing Proj., DC1-31, Sheridan Terrace, on Sheridan Rd. between Howard and Pomeroy Rds. S.E. $1,800,000. Extended date. Plans deposit $50. Brown, Chapman, Taher & Miller, 1000 Vermont Ave. N.W., archts. CD 12/18.

▲ **N. J., Pennington**—LABORATORY—BA 2/17—Socony Mobile Oil Co., Inc., 26 Broadway, New York, N. Y., research laboratory bldg. $1,000,000. Cornelius L. T. Gabler, Book Bldg., Detroit, Mich., archt. CD 9/20.

▲ **Pa., Morrisville** — SCHOOL — BA 3/25 — Morrisville School Auth., Morrisville High School, Morrisville, Senior High School on 20 acre tract, on Hamilton Blvd. $1,200,000. Plans deposit $15. Micklewright & Mountforo, 35 Union St., archts. CD 4/24.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK and ONTARIO**—State Dpt.P.Wks., The Gov. Alfred E. Smith State Office Bldg., Albany, N.Y.
American Bridge Div., United States Steel Corp., 71 Broadway, New York, N.Y., CA **$5,742,755**, est. $6,000,000, superstructure 3 main spans of International Suspension Bridge over St. Lawrence River between Chimney Rock, St. Lawrence Co., N.Y. and Grenville, Ont., Canada. Bids Nov. 21. CD 11/22, under LB.

Peter A. Camili & Sons, Inc., 75 Cooley St., Pleasantville, N.Y., CA **$960,000**. steam tunnel at Grasslands in Town of Mount Pleasant, VALHALLA, N.Y. Dpt. P.Wks., Westchester Co., County Office Bldg., White Plains, N.Y. Bids Dec. 18. CD 1/6, under LB.

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg, Bids opened 1/24.
Pa.—**James Julian, Inc.**, 405 S. DuPont Rd., Elsmere 5, Del. LB **$1,304,714** (12 bidders) wid'n. 25,766 ft. existing road with plain c. conc. or cr. aggreg. base variable in width and surf. T.R. US 202 W. Goshen Wettown, Thornbury, Concord and Birmingham Twps., Delaware and Chester Counties; LB **$793,734** constr. 15,443 ft. wid'n. existing pavement, constr. divided hy. conc. 24 ft. wide each side of divisor, T.R. US 202 Bethel, Concord and Birmingham Twps., Delaware Co.;
Pa.—**D.F. & D.R. Farabee**, Box 20, Unity, Pa. LB **$316,631** widn. 23,932 ft. existing road with course aggreg. base variable in width, surf. with bit. surf. T.R. 53 Upper Turkeyfoot; Middlecreek and Milford Twps., Somerset Co. CD 12/31, under Commonwealth of Pa., Dpt. Hys., as owner.

▲ **PENNSYLVANIA**—Commonwealth of Pa., Dpt. Hys., 506 North Office Bldg., Harrisburg, Bids opened 1/24,
Buckley & Co., 1317-21 S. Juniper St., Phila. 47, Pa. LB **$4,853,299** (5 bidders) constr. 4,543 ft. divided hy., c. conc. variable in width, 5 bridges; Roosevelt Blvd. 9th to 18th Sts., Philadelphia, Philadelphia Co. CD 12/20.

▲ **Washington Engineering & Constr. Co.**, Box 497 Washington, Pa. CA **$914,768** Contr. No. 2 general constr., sanitary sewerage sys., sewage treatment plant, GREENVILLE, PA. Greenville Sanitary Auth., Municipal Bldg., Greenville, Pa. Bids Dec. 20. CD 12/2.
Buckeye Constr. Co., 3983 Southwood Dr., Warren, O. CA **$73,594** Contr. 6 main intercepting sewer (Greenville, Pa.)

▲† **Deluca Davis Constr. Co., Inc. and Philip Vizzini & Son., Inc.**, 1968 Belair Rd., Baltimore 13, Md., joint venture, CA **$2,500,000** on alternate without outside lighting, Memorial Stadium, Navy Marine Corps, ANNAPOLIS, MD. Officer in Charge of Constr., U.S. Naval Academy, Annapolis, Md. Bids Jan. 21. CD 1/27, under LB.

BUILDINGS—LB & CA

▲ **William E. Bouley Co.**, 33 William St., Auburn, N. Y., LB **$1,633,500** (6 bidders) general contract FOOD PROCESSING RESEARCH BLDG. at New York State Agricultural Experiment Station, GENEVA, N. Y. Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Jan. 23;
Kenneth A. Taylor, Inc., New Court Ave., Syracuse, N. Y., LB **$492,800** (8 bidders) heating for RESEARCH BLDG. (Geneva, N. Y.).

▲ **Walsh Constr Co.**, 711 Third Ave., New York 17, N. Y., CA **$2,094,840**, CUSTOMERS RESEARCH LABORATORY; CA **$1,788,200**, BASIC RESEARCH LABORATORY; CA **$182,160**, MATERIAL TESTING BLDG.; CA **$115,000**, UTILITIES BLDG.; CA **$10,000,000**, 4 story OFFICE BLDG., GREENBURG, N. Y. Union Carbide Corp. 30 E. 42 St., New York 17, N. Y. Grand total $14,180,000. CD 7/12.

▲ **Turner Constr. Co.**, 150 E. 42 St., New York 17, N. Y. CA Est. **$40,000,000** (start indefinite) 60 story OFFICE, 31 W. 51 St. east side of 6 Ave. from 51 to 52 Sts., NEW YORK, N. Y. Galbreath Corp., 150 E. 42 St., New York 17, N. Y. Harrison & Abramowitz, 630 Fifth Ave., New York 20, N. Y., archts. CD 1/12/55. (owner changed).

▲ **Wilaka Constr. Co.**, 11 E. 44 St., New York, N. Y. CA **$1,533,000**, foundations and general construction Redfern HOUSES incl. boiler room alterations in existing Bldg. No. 2, Proj. NYS-55 in area bounded generally by Hassock St., Redfern Ave. and Bldgs. No. 5, 2, 3 and 6 existing Redfern Houses, Queens Boro, ROCKAWAY, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Dec. 10. CD 12/12 under LB.

▲† **B. J. Lucarelli & Co., Inc.**, 22 Orchard St., Jersey City, N. J., LB **$6,828,000** 460 unit Capehart HOUSING and site development at Griffiss Air Force Base, ROME, N. Y. U.S. Eng., 111 E. 16 St., New York 3, N. Y. Lorimer Rich & Assocs., 35 W. 53 St., New York, N. Y., engrs.-archts. CD 2/8/56.

▲ **Thomas Pagan**, 6825 Westfield Ave., Pennsauken, N. J., LB **$1,145,600**, general contract Woodrow Wilson HIGH SCHOOL addn., alterations, CAMDEN, N. J. Bd. Educ., City Hall, Camden 1, N. J. Bids Jan. 9. CD 12/6;
Cresco Builders, 6219 Crescent Blvd., Pennsauken, N. J., LB **$843,000**, general contract Camden SENIOR HIGH SCHOOL addns., alterations (Camden, N. J.).

▲† **B. J. Lucarelli & Co., Inc.**, 22 Orchard St., Jersey City, N. J., LB **$4,663,000**, 300 unit Capehart HOUSING, No. 49-605-58-2CH, WRIGHTSTOWN, N. J. Procurement Officer, McGuire Air Force Base, Wrightstown, N. J. Bids Jan. 16. CD 1/6.

▲ **Orleans Constr. Co.**, 100 W. Rockland St., Phila., Pa. Separate Contracts. **$1,000,000** SHOPPING CENTER, Cheltenham Ave., CHELTENHAM, PA. Solomon Kaplan, 2120 Spruce St., Phila., Pa. archt.

▲ **Barclay White & Co.**, 3337 Market St., Phila., Pa. CA **$2,000,000**. HOSPITAL addn., NORRISTOWN, PA. Montgomery Hospital, Norristown, Pa. CD 11/19.

▲ **Laver Bros.**, 1201 Chestnut St., Phila., Pa. Separate Contracts. **$2,250,000**, RESIDENTIAL DEVELOPMENT (150 houses) Winchester Rd., etc., PHILA., PA.

▲ **Villawood, Inc.**, 527 Brookhurst Ave., Narberth, Pa., and Box 150, Villanova, Pa. Separate Contracts. **$2,850,000**. 57 RESIDENTIAL DEVELOPMENT, Clairmont Rd., etc., VILLANOVA, PA. Edward Geddes, 4922 City Line Ave., Phila., Pa., archt.

▲† **Kirk Lindsey**, 2030 - 16th St. N., Arlington, Va., CA **$1,222,000**, Base Bid and Alternate Constr. GARAGE in courtyard of existing Old House Office Bldg. of U. S. House of Representatives, WASH., D. C. U. S. Govt., Office of Architect of the Capitol, U. S. Capitol, Wash., D. C. Bids Dec. 4. CD 12/6, under LB.

SOUTH

BUILDINGS—BA

▲ **Fla., Coral Gables** — HOTEL — BA 2/18 — Bowman Ashe Hotel Corp., Irving Simberg, pres., Box 431, Miami Beach, 2-3 and 5 story, bsmnt., 220x307 ft, CB-S, Hotel "Bowman Ashe", with swimming pool, Ponce De Leon Blvd. and Phoenetia Ave., $1,000,000. Tony M. Sherman, 1101 NE 79th St., Miami, archt. CD 9/5.

▲† **Ga., Brunswick**—POST OFFICE and COURT HOUSE—BA About 3/10—General Services Admin., Public Bldgs. Service, Wash., D. C., 1 story, part 3 story, 61,875 sq. ft. concrete frame, brick faced masonry walls, stone trim, aluminum windows, composition roofing, aluminum ornamentation, etc., post office and court house. Abreu & Robeson, Brunswick, archts. CD 2/9/56.

▲ **Tenn., Kingsport**—POST OFFICE—BA About 3/12—General Services Admin. P. Bldgs. Service, 19th and F Sts., NW, Wash., D.C., post office, etc. CD 1/6/56.

BUILDINGS—SLC

▲ **Ky., Louisville**—RETAIL STORE—Stewart Dry Goods Co., 4 and Walnut Sts., soon lets contract retail store. Over $1,000,000. Abbott & Merkt & Co., 10 E. 46 St., New York, N.Y., archts. E. T. Hutchins, 1208 Hayburn Bldg., assoc. archt. CD 5/24.

HEAVY CONSTRUCTION—LB & CA

▲ **NORTH CAROLINA**—State Hy. Dpt., Comn., Raleigh, Bids opened Jan. 28,
N. C.—**Barrus Constr. Co.**, Box 395 Kingston, N. C., LB **$129,048**, est. $125,000-$150,000, CABC b. conc. binder and surface, 0.91 US 70 from point in Morehead City, east across New (Gallante) Beaufort, Channel Bridge thence along Cedar to Live Oak Sts., in Beaufort, Proj. 8.21460, S909, (7), Carteret Co.;
N. C.—**Propst Constr. Co.**, Concord, N. C., LB **$530,229**, est. over $500,000, SABC and BST 10.97 mi. N. C. 86 from U. S. 156 in Yanceyville, northwest to Virginia State Line, Proj. 8.15143 S-910 (1), Caswell Co.;
N. C.—**A. B. Burton Co., Inc.**, Lynchburg, Va. and **James T. Triplett**, Chester, S. C., LB **$2,298,372**, est. over $500,000, grading, structures 3.15 mi. U. S. 158 exten. of Winston-Salem Expressway from South Min. St. to intersection of the US 158 and 421, Proj. 8.17478, 1-35 (13) 1-401 (15) U-401 (14), Forsyth Co.;
N. C.—**Blythe Bros. Co.**, Box 989, Charlotte 1, N. C., LB **$1,086,596**, est. over $500,000, grading and structures 11.26 mi. US 70 addnl. lane on US 70 between Greensboro and N. C. 61, Proj. 8.15416, 1-644 (16), Guilford Co.;
N. C.—**Asheville Constr. Co.**, Box 5119 Biltmore Station, Asheville, N. C., LB **$1,471,275**, est. over $500,000, grading, structures proposed interstate 3.63 mi. from Waterville Dam on Pigeon River to point 0.5 mi. northwest of Fines Creek, Proj. 8.19465, 1-719 (3), Haywood Co.;
N. C.—**W. E. Graham & Sons**, Cleveland, N. C., LB **$205,598**, est. $200,000-$225,000, SABC, b. conc. binder and surface 1.21 mi. relocation US 52 from intersection of North First St. and Wilson St. in Albemerle north along North First St. to Leslie St. thence to point on existing No. 52, Proj. 8.16907 & U-207 (8) BD 6.681152, Code 9.81001, Stanly Co.;
N. C.—**Dickerson, Inc.**, Monroe, N. C., LB **$610,435**, est. over $500,000, STBC, CABC and b. conc. binder and surface 8.98 mi. US 301 from point 2.2 mi. north of Wilson city limits, north to south end of Rocky Mount by-pass, Proj. 8.92967 F-117 (8) F-188 (7), Wilson and Nash Counties. CD 1/10.

▲ **Emile M. Babst Co.**, 4034 Tchoupitoulas St., New Orleans, La., LB **$829,000**, combined bid for underground piping and power plant; LB **$599,000**, underground piping only, at Tulane University, NEW ORLEANS, LA. Tulane University, 6823 St. Charles Ave., New Orleans, La. Leo S. Weil, 600 Audubon Bldg., New Orleans, La., engr.;
Comfortair Co., 913 Magazine St. New Orleans, La., LB **$211,500**, power plant at Tulane University (New Orleans, La.);
Lindsay & Morgan Cont., 1204 Magazine St., New Orleans, La., LB **$93,367**, electrical work at Tulane University (New Orleans, La.).

BUILDINGS—LB & CA

▲ **Joseph G. Moretti, Inc.**, 2401 NW 7th St., Miami, Fla. CA **$1,049,224**, Tropical JUNIOR HIGH SCHOOL, 10301 SW 48th St., MIAMI, FLA. Dade County Bd. P. Instruction, 275 NW 2nd. St., Administration Bldg., Miami, Fla. Bids Jan. 10, awarded Jan. 22. CD 1/16, under LB.

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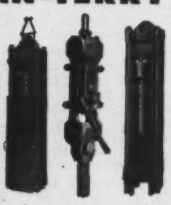

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32 Mercer Street, Dover, N. J.

W. F. Thompson Constr. Co., 3228 Ponce De Leon Blvd., Coral Gables, Fla. LB **$889,999,** Biscayne Gardens JUNIOR HIGH SCHOOL, NW 147th St. and NW 6th Ave., MIAMI, FLA. Dade County B. P. Instruction, 275 NW 2nd St., Administration Bldg., Miami, Fla. Mitchell-Gordon Assocs., 302 Bird Rd., Coral Gables, Fla., mech. engrs. Charles Payne & Assocs., 1900 NE 146th St., N. Miami Beach, Fla., engrs. W. C. Gorman, 2296 Coral Way, Miami, Fla., struct. engr. Bids Jan. 22. CD 1/7.

▲ **G. A. Hallmark & Sons, Inc.,** 3212-6th Ave. S., Birmingham, Ala. CA **$1,167,995** 2 story SOCIAL SECURITY BLDG. addn., BIRMINGHAM, ALA. Pub. Bldg. Auth., City Hall, Birmingham, Ala. Bids Nov. 26, awarded Jan. 23. CD 12/3, under LB.

▲ **Daniel Constr. Co., Inc.,** 822-7th Ave., S. Birmingham, Ala. CA Est. **$1,000,000,** Oscar Wells Memorial ART MUSEUM, BIRMINGHAM, ALA. Art Museum Bd., City of Birmingham, City Hall, Birmingham, Ala. Awarded Jan. 23. CD 6/27/56.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS

February 18 Ohio **February 19 Michigan**

BUILDINGS—BA

▲ **Mich., Saginaw**—HOSPITAL—BA 2/11—St. Mary's Hospital, Bd. Trustees, Arthur E. Treanor, chn. Bldg. Comn., 830 S. Jefferson St., hospital addn. $4,250,000. Schmidt Garden & Erikson, 104 S. Michigan, Chicago, Ill., archts. CD 12/6/56.

▲ **Mich., Grand Rapids**—PHYSICAL EDUCATION—BA 2/18—Bd. Educ., Gedwin School Dist., Grand Rapids, physical education bldg., 56th St. S.E. and Division St. south. $1,137,000. CD 11/1.

▲ **O., Dayton**—SCHOOL—BA 2/24—Bd. Educ., 348 W. First St., **Nettie Lee Roth High School,** Hoover Ave. and Elmhurst Rd. $2,800,000. Yount, Sullivan & Lecklider, 419 3rd National Bldg., archts. CD 4/8.

▲ **Ill., Evanston**—HOSPITAL, etc.—BA 2/25—Lutheran Deaconess Home & Hospital of Chicago, 1138 N. Leavitt St., Chicago, (a) hospital (b) nurses residence and school—SW corner Dempster and Western Ave. $5,900,000. Burnham & Hammond, 53 W. Jackson Blvd., Chicago, archts., CD 9/14/56.

BUILDINGS—SLC

▲ **Ill., Chicago**—WAREHOUSE—Time, Inc., 330 E. Cernak Rd., soon lets contract 1 story, 118,000 sq. ft. paper storage warehouse, 26th and Halstead and S. branch Chicago River. $1,250,000. Andrew N. Rebori, 150 N. Wacker Dr., archt. DeLeuw Cather & Co., 150 N. Wacker Dr., engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15, Bids opened 1/21,

O.—**Frantz Bros., Inc.,** 313 E. Court St., Sidney, O., LB **$849,633** est. $1,023,200 (4 bidders) Type T-35 on B.119, T-71 and structures 2.232 mi. USR 25 (2.12) (3.28) (5.08) (6.11), 1-063 (5). Allen Co.;

O.—**Clyde L. Moore, Inc.,** Route No. 1, Lowellville, O. LB **$226,449,** est. $266,800 (12 bidders) Type T-35 on B-119 and structures 1.103 mi., SR 89-(2.93) (3.58), S-143 (1). Ashland Co.;

O.—**The General Asphalt Paving Co.,** 500 Main Court S.E., Canton, O., LB **$1,095,091** est. $1,203,400, (12 bidders) Type T-35 on B-119 and structure 5.632 mi. USR 62, (& SR 39)-(21.08-21-51), F.-668 (2) Village of Millersburg), Holmes Co.;

O.—**John Hill Contr. Co.,** North Plymouth, Lexington, O., LB **$2,001,235,** est. $2,465,970 (13 bidders) Type T-71 and structures 0.901 mi. SR 16-21.52, U-UG-639 (4), (City of Newark), Licking Co.;

O.—**Codell Constr. Co. & F. H. Hosea Co.,** 125 S. Main St., Winchester, Ky., LB **$3,437,088** est. $3,759,800 (13 bidders) Type T-71 and structures, 6.634 mi. SR 1-03.17 AC1-1105 (11) Morrow Co.;

O.—**Carl F. Gerken & Sons,** R.R. No. 2, Napoleon, O., LB **$89,377,** est. $109,700, (5 bidders), T-35 on B-119, 0.79 mi. SR 65-(13.52) (17.02) (19.02), Allen Co.;

O.—**John R. Jurgensen Co.,** 3535 Roundbottom Rd., Cincinnati, O., **$73,452,** est. $71,230, (2 bidders) Type T-30, B-35, T-35, 1.86 mi. Hamilton Co.;

O.—**Pinckney P. Brewer & Sons Co.,** 7455 Dawson Rd., Cincinnati, O., LB **$100,500,** est. $95,370, (2 bidders) Type T-30, B-35, T-35, 7.88 mi. Hamilton Co. CD 1/2/58.

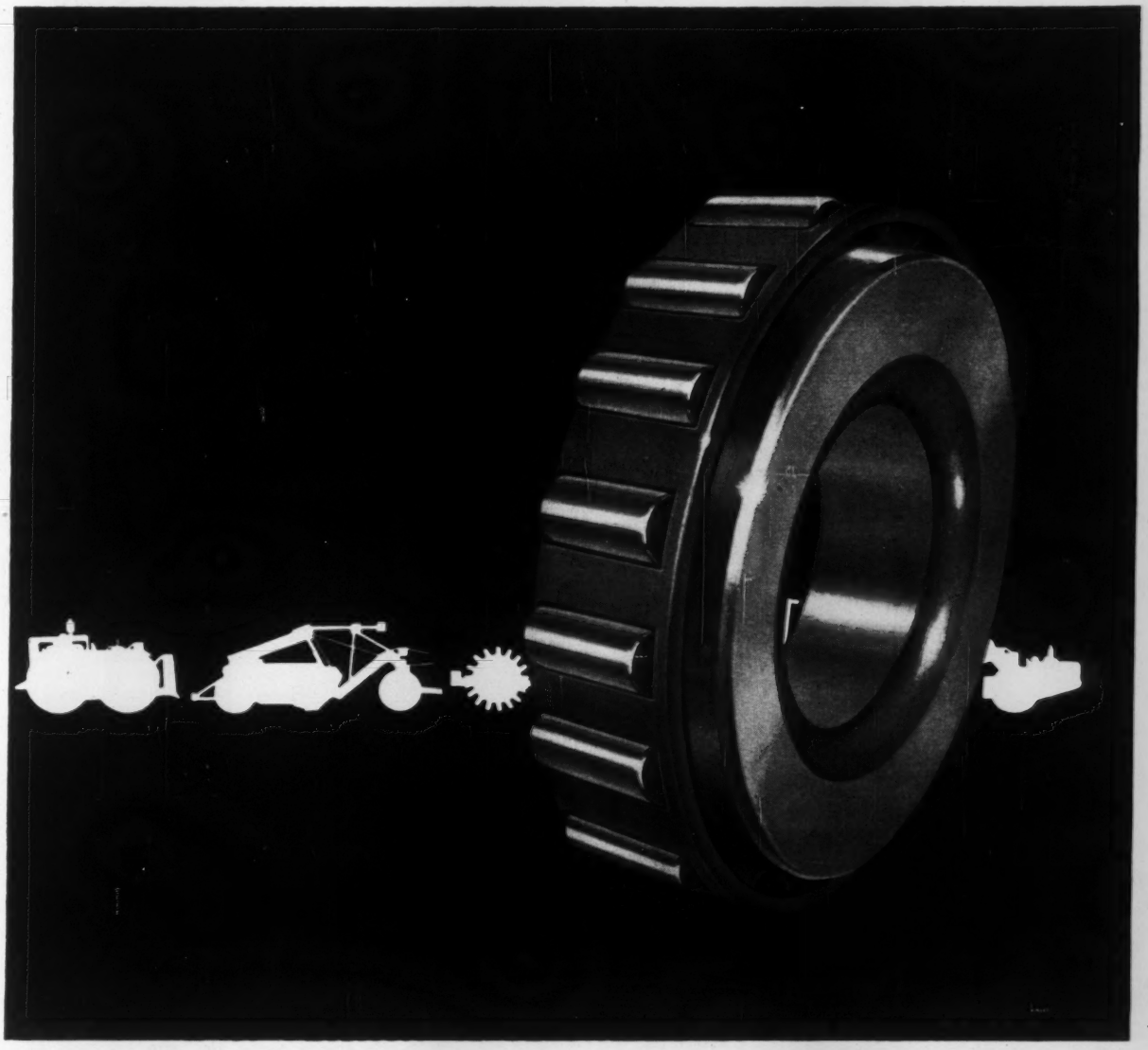
▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison,

R. W. Constr. Co. & Badger State Constr. Co., 3140 W. Fond du Lac Ave., Milwaukee 10, Wis., CA **$1,855,673,** grade, subbase, base, c. conc. pavement and Structures B-30-8, 9, and 10, 4.223 mi. Illinois State Line-Milwaukee County Line (C.T.H. V-S.T.H. 43 Section) Road, Interstate Hy. 94 Contr. 1, Proj. I 101-1(5), Kenosha Co., Bids Dec. 17. CD 12/23, under LB.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison, Bids opened 1/28,

Wis.—**C. R. Meyer & Sons Co.,** 50 State St., Oshkosh, Wis., LB **$406,339** (7 bidders), Structures B-70-24, 25, 26, 27, 28 and 29, Oshkosh-Neenah (S. T. H. 110 Interchange) and South County Line-Oshkosh (S. T. H. 21 Interchange) Roads, U. S. Hy. 41, Contr. 1, Projs. F 03-2(33) and F 03-2(34), Winnebago

(Continued on page 96)



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PERFECTED BY RESEARCH

MULTI-PURPOSE GREASE H

Esso

PROVED IN PERFORMANCE

(Continued from page 94)

Co.; LB **$356,196** (9 bidders), Structures B-70-13, 15, 21, 23, 30 and 31 and C-70-25, 26 and 28, S. T. H. 114-North County Line (S00 Line Overhead) and S. T. H. 114-North County Line (S. T. H. 150-North County Line) Roads, U. S. Hy. 41, Contr. 1, Projs. FG 03-2(38) and F 03-2(39), Winnebago Co.;

Wis.—**Universal Engineering Co.**, Medford, Wis., LB **$151,667** (8 bidders), Structures B-55-42 and B-55-46, Hudson-Eau Claire (Hammond-Baldwin Sect.) Road, Interstate Hy. 94, Contr. 2, Proj. I 103-4(10), St. Croix Co.;

Wis.—**Speedway Contg. Co.**, 6001 N. 91 St., Milwaukee, Wis., LB **$392,362**, (11 bidders), grade, Structure B-40-52 and b. conc. pavement 0.164 mi. Northwest Expressway (West Wells St. Underpass), Contr. 1, Proj. U 03-1(56), Milwaukee Co.;

Wis.—**Tri-State Constr. Co.**, Alma, Wis., LB **$201,445** (5 bidders), Structures B-55-43, 44 and 45, Hudson-Eau Claire (Hammond-Baldwin Sect.) Road, Interstate Hy. 94, Contr. 3, Proj. I 103-4(10), St. Croix Co.;

Wis.—**E. & C. Company**, 925 E. Albert Place, Milwaukee, Wis., LB **$1,019,457** (6 bidders), grade, base, Structure B-51-7 and c. conc. pavement 1.161 mi. Racine-Tabor (Ives Subway and approaches) Road, S. T. Hy. 32, Contr. 1, Projs. FG 01-1(27) and F 01-1(28), Racine Co. CD 1/9.

BUILDINGS—LB & CA

▲ **Gamm Constr. Co.**, 3207 Howard St., Skokie, Ill., CA **$1,000,000**, 135 unit MOTEL, swimming pool, admin. bldg., restaurant and parking, 8301 W. North Ave., RIVER FOREST, ILL. American National Bank & Trust Co. of Chicago Trustee, 33 N. LaSalle St., River Forest, Ill. Comm, Comm & Moses, 6350 N. Clark St., Chicago, Ill., archts.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 18 Kansas

▲† **Tex., Wichita Falls**—COMPOSITE STRUCTURES—BA 3/5—U. S. Eng., Box 61, Tulsa, Okla. 150,000 sq. ft. composite structures, Sheppard Air Force Base, ENG-34-066-58-16. $1,000,000-$2,500,000. CD 9/19.

BUILDINGS—BA

▲ **Minn., Fergus Falls**—PLANT—BA 2/15—Otter Tail Power Co., Fergus Falls, exten. plant at Hoot Lake Station; addn., superstructure; furnishing, installing 53,500 kw elec. generator station burning lignite. $10,000,000. Burns & Roe, Inc., 160 W. Broadway, New York 13, N. Y. CD 11/26/56.

▲† **Colo., Colorado Springs**—HOUSING—BA 4/3—Dept. Air Force, Constr. Agency P.O. Box 1670, 1200 family units, Armed Services Housing (Capehart Housing-On-Site Facilities), Air Force Academy Site, IFB, 05-613-58-30. CD 7/23.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

Hallett Constr. Co., Crosby, Minn., CA **$1,008,517**, base and concrete paving 10.3 mi. between one mi. E. of Lake Park and 0.4 mi. W. of Detroit, Becker Co. Bids Nov. 29. CD 12/5, under LB.

▲ **Torson Constr. Co.**, 1890 Woodswether Rd., Kansas City, Mo., CA **$1,051,779**, est. $1,159,000 (6 bidders), Blue Ridge Water Main, constr. 16- to 36-in. water transmission main from 95 St. to Blue Ridge Blvd. and Sterling Ave., KANSAS CITY, MO. City, c/o M. P. Hatcher, dir. Water Dpt., Kansas City, Mo. Bids Jan. 27. CD 1/13.

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck,

O. W. Swanson Constr. Co., 550 Snelling Ave. S., St. Paul, Minn., CA **$1,822,445**, Proj. No. 1-01-7 (10) c. conc. 12.197 mi. Interstate Route No. 1 E. of Jamestown, Stutsman and Barnes Counties. Bids Dec. 20. CD 12/27, under LB.

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck, Bids 1/24,

N. D.—**Schultz & Lindsay Constr. Co.**, 320½ Broadway, Fargo, N. D., LB **$1,029,411**, Proj. No. 1-01-7(11), 7.128 mi. c. conc., Interstate Rte. 1, W. of Valley City, Barnes Co.; LB **$348,276**, Proj. No. 1-01-7 (11) & F-36 (13) 9.042 mi. base b. conc. Interstate Rte. 1 and SH 1 W. of Valley City, Barnes Co.; LB **$911,344**, Proj. 1-01-8(6) 6.469 mi. c. conc. Interstate No. 1 from Valley City E. & W., Barnes Co.; LB **$272,983**, Proj. 1-01-8(6) 6.469 mi. base, b. conc. surf. and Interstate No. 1, from Valley City E & W, Barnes Co.;

N. D.—**P. A. Bradbury Constr. Co.**, Wylie Pk. Rd., Aberdeen, S. D., LB **$411,636**, Proj. F-258 (14), 22.879 mi. base b. conc., SH 8 from Bowbells southwesterly, Burke Co.;

N. D.—**Rue Contg. Co.**, 1338 3rd Ave. N., Fargo, N. D., LB **$146,978**, Proj. S-339 (19) 9.895 mi. base, b. conc., SH 30 from Maddock N. & S., Benson Co.;

N. D.—**Bober Constr. Co.**, Minot, N. D., LB **$158,223**, Proj. F-292 (8), 10.005 mi. grading, tr. serv. grav., SH 5 from Langdon East, Cavalier Co.;

N. D.—**Tennefos Constr. Co., Inc.**, 2504 5th Ave. S., Fargo, N. D., LB **$194,928**, Proj. S-313 (8), 8.938 mi. tr. serv. grav., SH 46 from near Gackle W. Logan and Stutsman Counties;

N. D.—**S. J. Groves & Sons**, Wesley Temple Bldg., Minneapolis, Minn., LB **$948,661**, Proj. 1-02-4(9), grading Interstate Rte. 2, from Drayton N&S, Pembina and Walsh Counties;

N. D.—**Scheffler & Mahrer**, Forman, N. D., LB **$183,072**, Proj. S-131(6), 14.192 mi. tr. serv. grav., SH 18 North of Inkster, Walsh Co.;

N. D.—**Wm. Collins & Sons, Inc.**, 500 2nd Ave. N., Fargo, N. D., LB **$272,294**, Proj. F-693 (2), 7.399 mi. base, b. conc. US 52, from Minot E. & W., Ward Co. CD 1/9/58.

TEXAS—State Hy. Comn., Austin, Bids opened 1/22,

Austin Paving Co., P.O. Box 1590, Dallas, Tex. LB **$919,440** grading, structures, storm sewers and c. conc. 2.632 mi. Hy. Loop 12, Proj. U 1089 (18) Dallas Co. CD 12/31.

BUILDINGS—LB & CA

▲ **Aglite Corp of America**, subsidiary of Sayre & Fisher Co., Sayreville, N. Y., Owner Builds. **$1,000,000**, constr. light-weight aggregate PLANT, to incl. main sintering plant, clay grinding house, raw clay shed, 1 story office bldg., etc., HAMEL, MINN. North Central Lightweight Aggregate Co., 6402 Bass Lake Rd., Hamel, Minn., lessee.

▲ **Millstone Constr. Inc.**, 8510 Eager Rd., Brentwood 17, Mo., CA **$927,000** Base Bid, general contract 8 story, bsmnt. (alternate on 10 story), brick, steel, concrete, glass, etc. OFFICE BLDG., 14 and 4 S. 4th St., ST. LOUIS, MO. The Caradine Hat Co., Raymond H. Wittcoff, vice pres. and dir. Bldg. Development, 8 S. 4th St., St. Louis 2, Mo. Bids Jan. 17. CD 1/6.

Sodemann Heat & Power Co., 1327 Macklind Ave., St. Louis 10, Mo., CA **$417,440**, Base Bid, heating and air-conditioning office bldg. (St. Louis, Mo.).

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 26, March 12 California
STREETS AND ROADS
February 18 Arizona,, Nevada, February 19, 26 Calif.

† **Calif., Sacramento**—AIRMEN DORMITORIES—BA—2/28—U.S. Eng., 1209 8th St., Airmen Dormitories No. 6 and 2, incl. utilities at Mather Air Force Base, Spec. 2371, Serial No. ENG-04-167-58-19. $850,000. CD 9/19.

BUILDINGS—BA

▲ **Calif., Oxnard**—SCHOOL—BA 2/19—Oxnard High School Dist., Oxnard, Hueneme High School, Port Hueneme. $1,285,166. Plans deposit $50. Fisher & Wilde, 20 S. Ash St., Ventura, archts. CD 11/19.

HEAVY CONSTRUCTION—LB & CA

▲ **NEVADA**—Dpt. Hys. State Office Bldg., Carson City,

Morrison-Knudsen Co., Inc., 900 W. 15 N., Salt Lake City, Utah. CA **$1,690,288** (11 bidders) constr. portion of State Hy. Sys. 4.152 mi. US Hy. 40 between 8½ mi. west and 4 mi. west of Wadsworth, I-In-001-1 (15), Washoe Co. Bids Jan. 23. CD 12/31 .

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Isbell Constr. Co., Granite Constr. Co., Gordon H. Ball & Gordon H. Ball, Inc., P.O. Box 2351, Reno, Nev. CA **$7,325,011**, constr. 6.7 mi. 4 lane divided hy. incl. ramps, access roads and connections on US Hy. 40 between ½ mi. west of Boca and 0.8 mi. east of Floriston, Nevada Co. Bids Jan. 22, awarded Jan. 24. CD 1/27, under LB.

CALIFORNIA—State Dpt. P. Wks., 1120 N St., Sacramento,

J. E. Haddock, Ltd., 3538 East Foothill Blvd., Pasadena, Tex. CA **$941,621** grading, surf. State Rte. 62 Azusa Ave. to constr. 3 mi. 4 lane divided hy. between San Bernardino Freeway in West Covina and Paramount Ave. in Azusa, incl. bridge over Little Dalton Wash and widening bridge at Big Dalton Wash, Los Angeles Co. Bids Jan. 16, awarded Jan. 27. CD 1/22, under LB.

▲ **Matt J. Zaich Co.**, 6828 Farmdale Ave., North Hollywood, Calif. LB **$3,325,721** (7 bidders) constr. East Compton Creek No. 2 Storm Drain Unit No. 2 in cities of Compton, Lynwood, South Gate, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Jan. 24. CD 11/7/52.

▲ **R. V. Lloyd Co.**, P. O. Box 128, Coachella, Calif. LB **$1,625,537** (14 bidders) sewage collection sys. and sewage trunk lines, SAN BERNARDINO, CALIF. East San Bernardino County Water Dist., 7337 Del. Rosa Ave., San Bernardino, Calif. Bids Jan. 27. CD 1/7.

▲ **Charles L. Harney, Inc.**, 575 Berry St., San Francisco, Calif. CA **$1,428,958** track removal and paving, reconstr. portion of Geary Blvd., Spec. 21,593, SAN FRANCISCO, CALIF. City and San Francisco Co., City Hall, San Francisco, Calif. Awarded 1/23. CD 1/15, under LB.

BUILDINGS—LB & CA

▲ **Richard Miller**, 51 S. Grant Ave., American Fork Utah. CA **$1,646,134**, American Fork HIGH SCHOOL, AMERICAN FORK, UTAH. Alpine School Dist., Frank Jex, dir., American Fork, Utah. Bids Jan. 20. CD 1/23, under LB.

▲ **Kuljian Corp.**, 1200 North Broad St., Phila. 21, Pa. CA Est. **$16,000,000** design and constr. POWER PLANT addn., MAGNA, UTAH. Utah Copper Div., Kennecott Copper Corp., Kearns Bldg., Salt Lake City, Utah. CD 3/7;

General Electric Co., River Rd., Schenectady, N. Y. CA Unit No. 4, 75,000 kw. reheat turbo-generator (Magna, Utah);

Combustion Engineering Co., 200 Madison St., New York, N. Y. CA 600,000 lb. per hr. boiler (Magna, Utah).

Newland Constr. Co., Everett, Wash., LB **$934,344**, (15 bidders), 7 steel frame bldgs. totaling 103,000 sq. ft. for JUNIOR COLLEGE, MOUNT VERNON, WASH. Union High School Dist. 1, Mount Vernon, Wash. Bids Jan. 23. CD 12/31.

▲ **Baugh Constr. Co.**, 922 Poplar Place, Seattle, Wash., LB **$1,112,400** (8 bidders) alter and enlarge Ballard HIGH SCHOOL, SEATTLE, WASH. School Dist. No. 1, 815 4 Ave. N., Seattle 1, Wash. Bids Jan. 28. CD 1/7/58.

▲ **D&E Corp.**, 8906 W. Olympic Blvd., Beverly Hills, Calif. Owner Builds. **$1,415,000**, 123 stucco DWELLINGS Tr. 21875 MONTEREY PARK, CALIF. Reichl & Starkman, 1022 La Cienega Blvd., Los Angeles, Calif., archt.

▲ **Gallegos Corp.**, 2120 S. Main St., Santa Ana, Calif. CA **$1,790,000**, 4 story, rein.-con. HOSPITAL addn., NEWPORT BEACH, CALIF. Hoag Memorial Hospital, 301 Newport Blvd., Newport Beach, Calif. Bids Jan. 8. CD 1/15, under LB.

▲ **John E. Branagh & Son**, 42 LaSalle, Piedmont, Calif., CA **$1,295,410**, concrete frame constr. Lowell JUNIOR HIGH SCHOOL, OAKLAND, CALIF. Oakland Unif. School Dist., c/o Supt., 1025 2nd Ave., Oakland, Calif. Bids Jan. 7, awarded Jan. 24. CD 1/15, under LB.

Herbert E. Ellis, P. O. Box 146, Station A, Berkeley, Calif., LB **$923,400** (5 bidders), Base Bid, 2 story, rein.-con. Bret Harte JUNIOR HIGH SCHOOL addns., OAKLAND, CALIF. Oakland Unif. School Dist., c/o Supt., 1025 2nd Ave., Oakland, Calif. Ponsford & Price, 524 20 Ave., Oakland, Calif., archts. Bids Jan. 21. CD 10/31/56.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 18 Northwest Territories
February 19 British Columbia

▲ **Sask., Saskatoon**—DEPARTMENT STORE—BA 2/25—Ruperts Land Trading Co. Ltd., subsidiary of Hudson's Bay Co., head office, 79 Main St., Winnipeg, Man., 3 story, bsmnt., 140 X 300 ft., rein.-con. department store addn. $3,000,000. Moody & Moore, 295 Broadway Ave., Winnipeg, Man., archts. CD 1/22.

▲ **B. C., Kitimat**—HOSPITAL—BA 2/27—Kitimat General Hospital Society, Kitimat, 5 story, rein.-con. hospital. $2,500,000. Thompson, Berwick, Pratt, 1553 Robson, Vancouver, archts.

▲ **Ont., Ottawa**—SURVEYS and MAPPING—BA 3/5—Dpt. P. Wks., Hunter Bldg., partly 4 and partly 7 story, bsmnt. 200 x 760 ft. rein.-con., brick facing, Surveys and Mapping Bldg., Booth St. $1,500,000. Plans deposit $500. Allward & Gouinlock, 245 Davenport Rd., Toronto, archts.

▲ **Ont., Toronto**—DENTAL COLLEGE—BA 3/5—University of Toronto, F. J. Hastie, supt., 226 Simcoe Hall, Toronto, 5 story bldg., part structural steel, part rein.-con., brick walls, Dental College, $7,000,000 (furnished). Plans deposit $200. Allward & Gouinlock, 254 Davenport Rd., archts. R. P. Allsop & Assocs., Ltd., 290 Davenport Rd., engrs. CD 10/14.

BUILDINGS—LB & CA

▲ **Riverside Housing Inc.**, 5210 Van Horne Ave., Montreal, Que. Owner Builds. **$1,300,000**, constr. 13 APARTMENT BLOCKS, each contain 13 suites, Centrale & and 48th Ave., La Salle, MONTREAL, QUE. Charles Grenier, 3600 Barclay Ave., Montreal, Que., archt. Irving S. Backler, 5253 Decarie Blvd., Montreal, Que., engr. CD 5/1.

▲ **West End Development, Inc.**, 5944 Park Ave., Montreal, Que., Owner Builds. **$5,000,000**, 500 unit HOUSING and SHOPPING CENTER, ST. JOACHIM DE CHATEAUGUAY, QUE. Nathan B. Schertzer, 630 Marlatt St., St. Laurent, Que., archt.

▲ **Sept Isles Gardens' Ltee**, 5210 Van Horne Ave., Montreal, Que., Owner Builds. **$2,000,000**, 180 unit HOUSING, SEVEN ISLES, QUE.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **M. W. Kellogg Co.**, 71 Third Ave., New York, N. Y., U.S.A., CA **$24,000,000**. OIL REFINERY in Lujan, Mendoza Province, ARGENTINA. Yacimientos Petroliferos Fiscales Govt. of Argentina, Buenos Aires, Argentina. CD 4/27/56.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **J. H. Pomeroy Co.**, 120 Montgomery St., San Francisco, Calif., U. S. A. and **Hawaiian Dredging Co.**, Honolulu, T. H. CA Est. **$23,481,000**. port development, KUWAIT. Public Works Department, Paramaribo, Kuwait.

(Proposal Advertisement see pp. 110 to 112)

How to make a Pony do a Plow-horse Job

New Allison CT-3340 brings TORQMATIC muscle for the first time to 7-yd. scrapers and small materials handlers.

A scraper with TORQMATIC delivers more power at the blade—faster work cycles—more time on the job.

Any operator of a TORQMATIC-equipped giant scraper can vouch for that. Now, for the first time, the proved advantages of TORQMATIC are available in several small scrapers, haulers and other materials handlers with the new TORQMATIC CT-3340.

Take a tip from more than 80 manufacturers of 122 different types of construction and road-building equipment.

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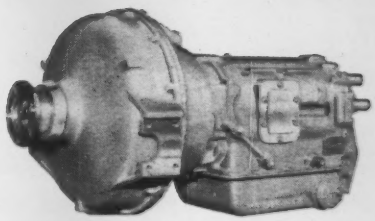


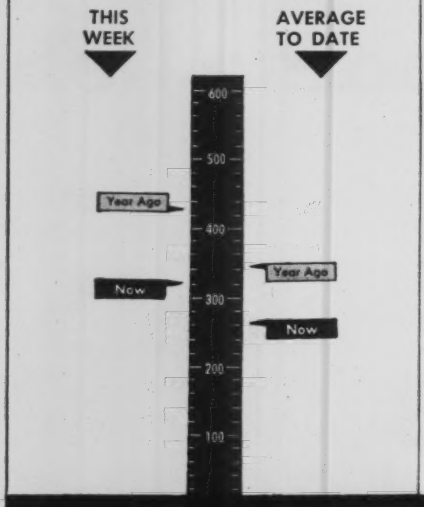
- New "straight-through" design provides maximum capacity in minimum space.
- Full power shifts in all speeds: 4 forward, 2 reverse, including high-speed overdrive for return trips.
- Net torque input—350 ft-lbs.
- Multiplies engine torque 300%.
- Total torque ratio: 15.9:1.

Allison TORQMATIC® DRIVES

Construction Scoreboard

ACTIVITY THIS WEEK

Contract Awards
Millions of Dollars

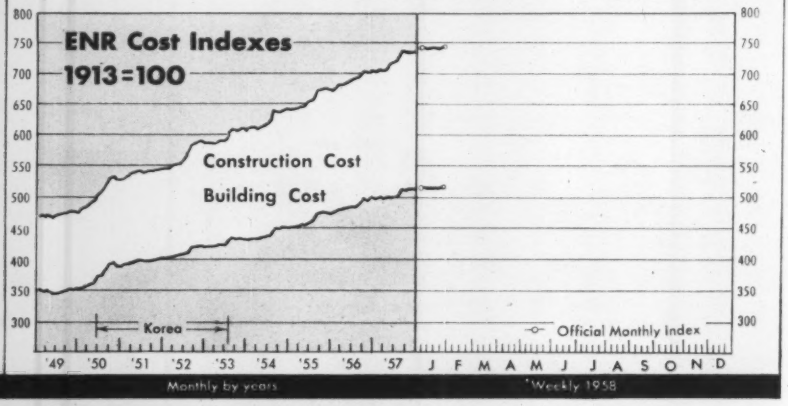


COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of Jan. 30 1958	% of Change from Jan. 2 1958	% of Change from Jan. 31 1957
Construction Cost	743.77*	+0.04	+4.7
Building Cost	515.78*	−0.20	+2.6

* Official Monthly Index for February 1958

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1940 = 100: Divide Construction Cost by 4.770; Building Cost by 3.578



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 6 wks 1958	Chge '57-'58 %
	millions		
All Heavy Constr.	$322.9	$1,581.7	−24
Private	182.7	703.9	−30
Public	140.2	877.8	−20
State & Municipal	111.4	722.7	−9
Federal	28.8	155.1	−48
By Type of Work			
Public			
Waterworks	2.4	25.5	−38
Sewerage	11.8	71.2	+17
Bridges*	14.1	41.5	−46
Highways	41.2	239.3	−23
Earthwork, Waterways	6.8	126.8	−1
Buildings, Excl. Housing	39.5	215.9	−14
Housing	17.3	105.0	+29
Unclassified	7.0	52.5	−63
Private			
Mass Housing	32.5	214.2	−37
Commercial	60.9	189.5	+110
Industrial	85.7	258.3	−52
Unclassified	3.7	42.0	+42

* Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Jan. 30	Cum. 5 wks 1958	Chge '57-'58 %
	millions		
Corporate Securities	$95.3	$396.2	−30
State and Municipal:			
All Except Housing	16.6	544.3	+22
Housing	0.3	1.0	...
Federal Loans	1.9	29.8	+127
Federal Aid	...	.....	...
Total Nonfederal	$114.2	$971.4	−5
Federal Appropriations:			
Projects in U. S.	...	.....	...
Outside U. S.	...	.....	...
Total New Capital	$114.2	$971.4	−5

WAGE RATES, 20-cities average

	Feb. 1958	% Change from Jan. 1958	% Change from Feb. 1957
Common	$2.379	+0.3	+7.2
Skilled (average 3 trades)	3.624	−0.1	+4.8
Bricklayers	3.871	−0.2	+3.7
Structural ironworkers	3.639	0	+5.7
Carpenters	3.361	0	+5.0
Equipment operators (average 3 types)	3.286	+1.2	+5.8

MATERIAL PRICES, 20-Cities average

Structural steel (average 3 mills), per cwt	$5.275	0	+5.5
Lumber, 2x4 fir, per Mfbm	111.42	−1.2	−4.6
Lumber, 2x4 pine, per Mfbm	99.17	−0.1	−3.7
Cement, bulk, per bbl	3.97	0	+2.5
Sand, per ton	2.497	+0.2	+2.2
Ready-mixed concrete, per cu yd	13.836	0	+2.6
Gypsum sheathing, ½″x2′x8′, per Msf*	62.41	−0.7	−0.8
Fiber board sheathing, ½″ sq. ed., per Msf*	70.82	−1.3	−0.7
Mineral wool insulation, 3′ batts, per Msf*	71.01	0	−0.1
Crushed stone, 1½″, per ton, CL	2.838	0	+0.9
Concrete blocks, sand/gravel, 8″x8″x16″, each*	.228	0	+0.4
	Jan. 1958	**Dec. 1957**	**Jan. 1957**
Brick, common, per M	$38.150	+1.4	+2.0
Lime, hydrated finishing, per ton, CL	36.808	+0.4	+3.4
Structural clay tile, 3x12x12″, per M, 2,000 up*	182.669	−0.7	+3.8
Vitrified clay sewer pipe, std 12″, per ft	1.260	−4.3	−4.3
Concrete sewer pipe, 12″, per ft	1.241	+0.8	+11.6

*Delivered, truck lots

ENR INDEX REVIEW

1957	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
Feb	710.06	148.85	502.59	142.87	546	158
Mar	708.64	148.56	501.37	142.52	553	160
Apr	709.30	148.69	501.37	142.52	564	163
May	715.70	150.04	503.01	142.99	553	160
Jun	721.36	151.22	504.17	143.32	588	170
Jul	724.15	151.81	506.62	144.01	587	170
Aug	738.63	154.84	516.90	146.93	528	153
Sep	737.78	154.66	516.12	146.71	466	135
Oct	737.14	154.53	516.78	146.90	506	146
Nov	737.43	154.59	516.81	146.91	457	132
Dec	738.08	154.73	516.28	146.76	356	103
1957 Average	**723.85**	**151.74**	**508.67**	**144.59**	**517**	**150**
1958						
Jan	743.44	155.85	516.79	146.90	368	106
Feb	743.77	155.93	515.78	146.61	...	...

Cone Bros. Contracting Co. is using the following Caterpillar-built equipment on this job: DW21-No. 470 LOWBOWL Scrapers: D9, D8 and D7 Tractors and a No. 12 Motor Grader. The DW21 units have a capacity of 25 cu. yd. heaped, 18 cu. yd. struck. Their LOWBOWL design pays off in high production at lower cost per yard.

"We have observed other machines and have come to the conclusion that our Caterpillar-built rigs have much less down time. We have found them more dependable. We're 100% Caterpillar on this job." **Charles E. Bailes, Jr., Superintendent of Cone Bros. Contracting Co., Tampa, Florida.**

Five DW21-No. 470 LOWBOWL Scrapers spearhead the Caterpillar line-up used by Cone Bros. on a 23-mile, $1,500,000 road building project in Florida. One section, running 12 miles from U. S. 41 at North Naples to Immokalee, involves moving about 500,000 cu. yd. of sand and marl. In extremely heavy going, the five DW21s hauled 120 loads in 10 hours over the two-mile round-trip. Each DW21 unit carried 21 cu. yd. per load. Here you see one of them being push-loaded by a D9.

CAT LOWBOWL Scrapers for lower cost per yard. As Superintendent Bailes observed, Caterpillar-built rigs "have much less down time" and "are more dependable." These are factors in high production. And in the case of Cat Scrapers, there's another big factor—exclusive LOWBOWL design. On job after job, matched against current models of other makes, Caterpillar LOWBOWL Scrapers have handled material at lower cost per yard. This is a fact, not a claim. It is completely documented by data covering road conditions, materials handled, load times, haul times, cycle times, bank yards per trip as well as the real payoff—cost of dirt moved per yard, the only true measure of a machine's productive capacity!

Your Caterpillar Dealer has proof. All these job facts are on file at your Caterpillar Dealer's. Have you seen them? They'll give you a good idea how Cat LOWBOWL Scrapers can lower your earthmoving costs. Your dealer will be glad to show them to you. He'll be glad to demonstrate, too—just say when and where, he'll be there!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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Peoria, Ill.

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Lease-Purchase Jobs On the Way; When,

Construction of federal buildings by the lease-purchase method is beginning to move. The General Services Administration last week awarded the first two construction contracts in the current comeback of the program.

Keen competitive bidding in recent weeks for financing and construction of lease-purchase projects has revitalized the program. It looks now as if the two government agencies involved—GSA and the Post Office Department—will be able to award some 50 projects this year from the $700-million list of 146 jobs approved for construction. As many more probably can go out for construction bids in 1959, with the windup of awards—including some of the bigger jobs—in the following year, provided favorable bidding conditions continue.

Solid hope for active resumption of lease-purchase construction has built up steadily in the last two months. Investment institutions—insurance companies, banks and trust funds—have competed in good numbers for the financing of 18 GSA projects. On only two projects were bids rejected, and these have been readvertised. Financing commitments are in hand for 16 projects, with 13 more scheduled for bid openings this month. Interest rates offered in financial bidding have shown a downward trend, with low bids found acceptable at successive openings running from 5% in mid-December to just under 4.6% last week.

Advertising for construction bids follows closely on acceptance of the financing offer for a project. The money commitment is good for only 90 days, and a construction contract must be signed

$700 Million Worth of Construction in 146 Buildings

LOCATION	BUILDING	COST
Abingdon, Va	P.O. and Courthouse	$725,000
Albuquerque, N. Mex.	Federal Office Building	6,227,300
Atlanta, Ga	Motor-Vehicle Shop and Garage	252,644
Atlanta, Ga	Communicable Disease Center	12,330,000
Baltimore, Md	Federal Office Building	19,170,000
Beaver, Pa	P.O. and Federal Office Building	310,000
Bellflower, Calif	Post Office	297,500
Bemidji, Minn	P.O. & Federal Office Building	1,200,000
Benton, Ill	P.O. and Courthouse	1,100,000
Biloxi, Miss	P.O. and Courthouse	1,110,000
Boston, Mass	Federal Office Building	28,150,000
Brainerd, Minn	P.O. & Federal Office Building	612,000
Breese, Ill	P.O. & Federal Office Building	271,000
Brooklyn, N. Y.	Courthouse and F.O.B.	15,200,000
Brunswick, Ga	P.O. and Courthouse	1,431,000
Burlington, Iowa	Post Office, etc	1,328,987
Burlington, Vt	P.O. and Courthouse	2,830,000
Camden, Ala	Post Office, etc	272,000
Camden, N. Y	Post Office	147,300
Carthage, Tenn	Post Office, etc	272,000
Cashmere, Wash	Post Office	97,200
Charleston, W. Va	Courthouse and F.O.B.	3,820,000
Cincinnati, Ohio	Federal Office Building	21,700,000
Council Bluffs, Iowa	P.O. and Courthouse	1,630,000
Daingerfield, Tex	P.O. & Federal Office Building	216,000
Dallas, Tex	Courthouse and F.O.B	24,490,000
Denton, Md	P.O. & Federal Office Bldg.	415,000
Denver, Colo	Post Office	8,209,000
Denver, Colo	Courthouse	6,420,000
Detroit, Mich. (North End Station)	Post Office	525,877
Durham, N. H	Post Office, etc	433,600
East New York, Sta., N. Y	Post Office	491,300
Emporia, Kans	Post Office, etc	600,000
Fort Dodge, Iowa	P.O. and Courthouse	$1,980,000
Fort Mill, S. C	Post Office	49,800
Franconia, Va	Warehouse Building	7,500,000
Gainesville, Tex	Post Office, etc	645,036
Garland, Tex	Post Office	183,450
Gering, Neb	Post Office	136,915
Grand Prairie, Tex	Post Office	245,000
Green Bay, Wis	P.O. and Courthouse	1,615,000
Greenville, Miss	P.O. and Courthouse	1,200,000
Greenwich, N. Y	Post Office	112,890
Grundy, Va	Post Office	106,000
Guilford, Conn	Post Office, etc	154,600
Hartford, Conn	Federal Office Bldg	8,350,000
Helana, Ark	Post Office, etc	1,020,000
Hot Springs, Ark	P.O. and Courthouse	1,729,000
Houston, Tex	Post Office	7,100,000
Houston, Tex	Courthouse and F.O.B	15,300,000
Hudson, Mass	Post Office	198,789
Huntington, W. Va	Federal Office Building	4,815,000
Jamestown, N. Y	P.O. and Courthouse	1,965,000
Jefferson, Ohio	Post Office	78,125
Jersey City, N. J. (Bergen)	Post Office	268,009
Jonesboro, La	P.O. and Federal Office Bldg	365,000
Kansas City, Kans	P.O. and Courthouse	4,540,000
Kingsport, Tenn	Federal Office Bldg	1,146,000
Lafayette, Tenn	P.O. and Federal Office Bldg	275,000
Lafayette, La	Post Office, etc	1,095,000
Lake Charles, La	P.O. and Courthouse	2,075,000
Lansford, Pa	Post Office	94,000
Laurel, Miss	P.O. & Federal Office Bldg.	829,000
Leavenworth, Kans	P.O. and Courthouse	968,000
Little Rock, Ark	Federal Office Building	9,150,000
Livingston, Ala	P.O. and Federal Office Bldg	279,000
Los Angeles, Calif	Customhouse and F.O.B.	30,800,000
Madison, Tenn	Post Office	138,000
Manning, S. C.	Post Office and F.O.B.	364,000

Where, Costs

within that time to establish the actual cost of the job and permit closing of the financial deal.

• **Bids below cost estimates**—Construction bids received at the first two openings confirmed the optimism generated by the financial bidding. For the first project, the low construction bid of the 11 tendered was 31% below the maximum amount of $5.8 million available under the financing commitment for a federal office building at Albuquerque, N. M. (ENR Jan. 30 p. 75).

Bids at the second opening showed a similar trend. The low construction bid of the 12 received for a post office and courthouse at Council Bluffs, Iowa, was 19% below the maximum financing figure of $1,690,000 for the job. Martin C. Eby, Wichita, Kan., contractor, made the lowest construction offer at $1,363,831. The 12 bids were closely bunched, with a high of $1,534,000.

GSA has awarded both jobs to the low bidders.

Financing commitments, it must be noted, cover more than the cost of the construction contract. Also included are interest during construction and an item for contingencies. Even so, the construction bids on the first two projects are highly favorable.

In fact, the contract prices for both projects come well within construction estimates made three years ago. Original prospectuses for the two jobs, approved in 1955 by the Public Works Committees of the House and Senate, listed the estimated construction cost for Albuquerque at $5,079,000 and for Council Bluffs at $1,392,000. The successful bid for Albuquerque, by C. H. Leavell & Co. of El Paso, is more than $1 million under the original estimate, while Eby's contract price for the smaller job at Council Bluffs also beats the old figure, but by a lesser margin.

(*Continued on page 102*)

LOCATION	BUILDING	COST
Maplewood, N. J.	Post Office	$357,600
Marshfield, Mo.	Post Office, etc.	324,000
Martinsburg, W. Va.	P.O. and Courthouse	1,400,000
McKinney, Tex.	P.O. and Federal Office Bldg.	480,000
Miami, Fla.	Federal Office Bldg.	8,875,000
Milledgeville, Ga.	P.O. & Federal Office Bldg.	502,000
Minden, La.	Post Office, etc.	412,000
Minneapolis, Minn.	Courthouse and F.O.B.	5,877,815
Moberly, Mo.	P.O. and F.O.B.	487,000
Monticello, Fla.	P.O. & Federal Office Bldg.	310,000
Moorhead, Minn.	P.O. & Federal Office Bldg.	555,000
Mount Hope, W. Va.	Bureau of Mines	700,000
National City, Calif.	Post Office	376,800
New Orleans, La.	Post Office, Garage Facilities	19,670,000
New Richmond, Wis.	Post Office	147,600
New York, N. Y.	United States Mission to U.N.	3,300,000
New York, N. Y.	Customhouse and F.O.B.	65,100,000
Newark N. J. (Roseville)	Post Office	227,675
Newkirk, Okla.	Post Office	98,100
Newtown, Pa.	Post Office	150,915
Ocala, Fla.	Post Office & Courthouse	1,580,000
Oklahoma City, Okla.	Courthouse and F.O.B.	7,140,000
Omaha, Nebr.	Post Office & Courthouse	9,579,823
Ontonagon, Mich.	Post Office	106,000
Orange, Tex.	P.O. & Federal Office Bldg.	620,000
Oxford, Pa.	Post Office	109,000
Parkersburg, W. Va.	Courthouse and F.O.B.	3,045,000
Philadelphia, Pa.	Post Office Garage	1,805,000
Phoenix, Ariz.	Courthouse and F.O.B.	8,600,000
Pittsburgh, Pa. (Homewood)	Post Office	238,500
Pittsburgh, Pa.	Federal Office Building	23,960,000
Pittsford, N. Y.	Post Office	135,395
Point Pleasant, N. J.	Post Office	136,500
Portland, Ore.	Federal Office Building	5,092,500
Portsmouth, Va.	P.O. & Federal Office Bldg.	3,575,000
Redwood Falls, Minn.	P.O. and Federal Office Bldg.	440,000
Refugio, Tex.	Post Office	117,700
Richmond, Va.	Federal Office Bldg.	7,410,000
Rittman, Ohio	Post Office	$136,775
Rock Island, Ill.	P.O. and Courthouse	2,000,000
Ronceverte, W. Va.	Post Office, etc.	255,000
Sacramento, Calif.	Courthouse and F.O.B.	10,210,000
Salt Lake City, Utah	Federal Office Building	7,600,000
San Francisco, Calif.	Courthouse and F.O.B.	45,300,000
San Marcos, Tex.	P.O. & Federal Office Bldg.	576,000
Scranton, Pa.	Post Office	94,300
Sedan, Kans.	P.O. & Federal Office Bldg.	218,000
Sheboygan Falls, Wis.	Post Office	105,000
Sioux City, Iowa	Morningside Post Office Sta.	85,500
Sisseton, S. Dak.	Post Office, etc.	530,000
Skaneateles, N. Y.	Post Office	103,500
Smithville, Tenn.	Post Office, etc.	263,000
Sparta, Mich.	Post Office	103,400
St. Louis, Mo.	Federal Office Building	13,760,000
St. Louis, Mo.	Federal Records Office	6,740,000
St. Marys, Ohio	Post Office	126,400
St. Paul, Minn.	P.O. and Customhouse	4,040,000
Teaneck, N. J.	Post Office	385,500
Terrell, Tex.	P.O. & Federal Office Bldg.	392,000
Toledo, Ohio	Federal Office Bldg.	4,950,000
Toronto, Ohio	Post Office	53,125
Tupper Lake, N. Y.	Post Office	107,554
Two Harbors, Minn.	Post Office	107,400
Victoria, Tex.	P.O. and Courthouse	1,563,000
Wailuku, Hawaii	P.O. & Federal Office Bldg.	757,000
Waukesha, Wis.	Post Office	408,000
Wayland, N. Y.	Post Office	56,250
Waynesboro, Va.	P.O. & Federal Office Bldg.	380,000
West Memphis, Ark.	Post Office	138,045
Winnetka, Ill.	Post Office	326,000
Washington, D. C.	Federal Office Bldg. No. 5	25,250,000
Washington, D. C.	Federal Office Bldg. No. 6	16,275,000
Washington, D. C.	Federal Office Bldg. No. 7	27,450,000
Washington, D. C.	Federal Office Bldg. No. 8 (HEW)	12,190,000
Washington, D. C.	Federal Office Bldg. No. 9 (CSC)	22,115,000
Washington, D. C.	Federal Office Bldg. No. 10	40,900,000
Washington, D. C.	U.S. Geological Survey Bldg.	22,260,000
Total 146 Projects		**$714,600,000**

. . . Where lease-purchase buildings will go

• **Cost estimates updated**—To evaluate current bids on lease-purchase projects, GSA actually uses updated construction estimates. The new estimates have been revised to allow for any changes made during final design of the buildings and to reflect construction cost increases on a regional basis. In the light of experience at the first two bid openings, the allowance for cost increases appears somewhat academic.

Without permission to adjust the estimates in relation to increased construction costs, however, GSA would have hesitated to put lease-purchase projects out for bids again. The agency had run into high construction bids back in 1956, after launching its only going project—a post office and courthouse at Rock Island, Ill. When it called for financing and construction bids that year, for example, on the project at Council Bluffs, it received one combination offer of $1.8 million to both finance and build the job and three separate bids, for construction only, ranging from $1,506,000 to $1,630,000.

These 1956 bids for Council Bluffs had to be rejected. In today's market, as already noted, the job has now gone to construction contract for $1,363,831.

• **Revived after suspension**—Experiences of this kind in 1956 caused GSA to suspend the program entirely at the beginning of 1957. Two obstacles blocked any progress at that time. One was a 4% interest ceiling clamped on project financing by the Budget Bureau at the insistence of former Treasury Secretary George Humphrey. With interest rates zooming in a tight money market, investors just weren't interested in a 4% return, even for a guaranteed loan that the government would pay back in installments—like rent—over a contract term of 10 to 25 years.

This obstacle was removed when Robert Anderson took over as Treasury Secretary last year. GSA in October announced that it would seek financing bids without any limitation on interest rate. The lowest competitive bid now wins a financing commitment, unless the low bid appears out of line with prevailing rates.

The other roadblock holding back the program was the assumption by GSA that cost estimates approved by the Budget Bureau and Congress in 1955 and 1956 could not be exceeded. The Comptroller General cleared away this difficulty last summer when he ruled that reasonable variations are permissible under the lease-purchase law enacted in 1954. In an earlier decision, he had given the same latitude to the Post Office Department in taking bids on its smaller lease-purchase program. Substantial increases in costs, however, were ruled out by the Comptroller General. This leaves some projects in doubt, particularly a few big jobs that will come up toward the end of the GSA program.

The lease-purchase law expired last July, when the House Public Works Committee turned down a Senate-passed bill that called for a three-year extension. Instead the Democratic majority on the House committee revamped the language of the Senate measure completely by substituting the provisions of the Jones Bill, which would authorize appropriations for direct federal construction of nearly all the buildings on the lease-purchase list.

• **President urges continuance**—President Eisenhower in his Budget Message urged Congress to continue the program, but Congressional action to carry out his request appears highly doubtful at the moment. However, GSA plans to take construction bids on a total of 30 projects by April 15, and this fast action may swing Congress around to voting for reinstatement of lease-purchase. If so, there are a couple of hundred additional projects in the offing that could be submitted for approval before 1960.

Even without an extension of the 1954 law, however, GSA will roll ahead with construction in the next three years with construction of most of its 98 projects, costing some $700 million, on its approved list. Site acquisition and architectural design by private firms is moving along on a priority schedule. These activities will take about $80 million, of which $40 million has been provided, with another $20 million to come in the fiscal year starting July 1. Some of the big architectural jobs are being carried forward in stages as money becomes available—preliminary work in the first step, followed by working drawings and specifications in the second.

There is less need for lease-purchase construction in the Post Office Department, which can get most of the new buildings it needs under long-term leasing contracts, up to 20 and 30 years in length, with option to renew. Contracts of this kind are awarded in large numbers, at a rate of about three a day.

• **Post Office program**—However, the Post Office has 48 approved lease-purchase projects, estimated to cost about $23 million, of which only three have been awarded, with contract signing for a fourth expected any day. All four are for small post offices.

For its lease-purchase jobs, the department continues to follow its favored single-package procedure, with financing and construction included in one contract. Post Office people are watching GSA's operation in taking separate bids, however, and might give that system a trial if it seems to work better.

On its only big lease-purchase project so far advertised, the Post Office Department a couple of months ago drew some interesting single-package bids for a post office in Denver. Congress had approved a construction cost of $7.4 million for this job. The lowest bid on a basis of annual payments over a 25 year term, was for $8.6 million and an interest charge of 5.125%.

Because this cost seemed to exceed the reasonable variation that the comptroller general considers permissible, the Post Office and its Denver architects are modifying the plans to save $500,000 or more. The project soon will be readvertised.

Not all the projects on the approved Post Office list will necessarily be built under lease-purchase contracts. Some may be switched over to straight leasing procedure. But at least 16 of the approved projects will probably go ahead as lease-purchase jobs.

Cheaper Mortgages?

Trend in sight as Home Loan Banks cut rates

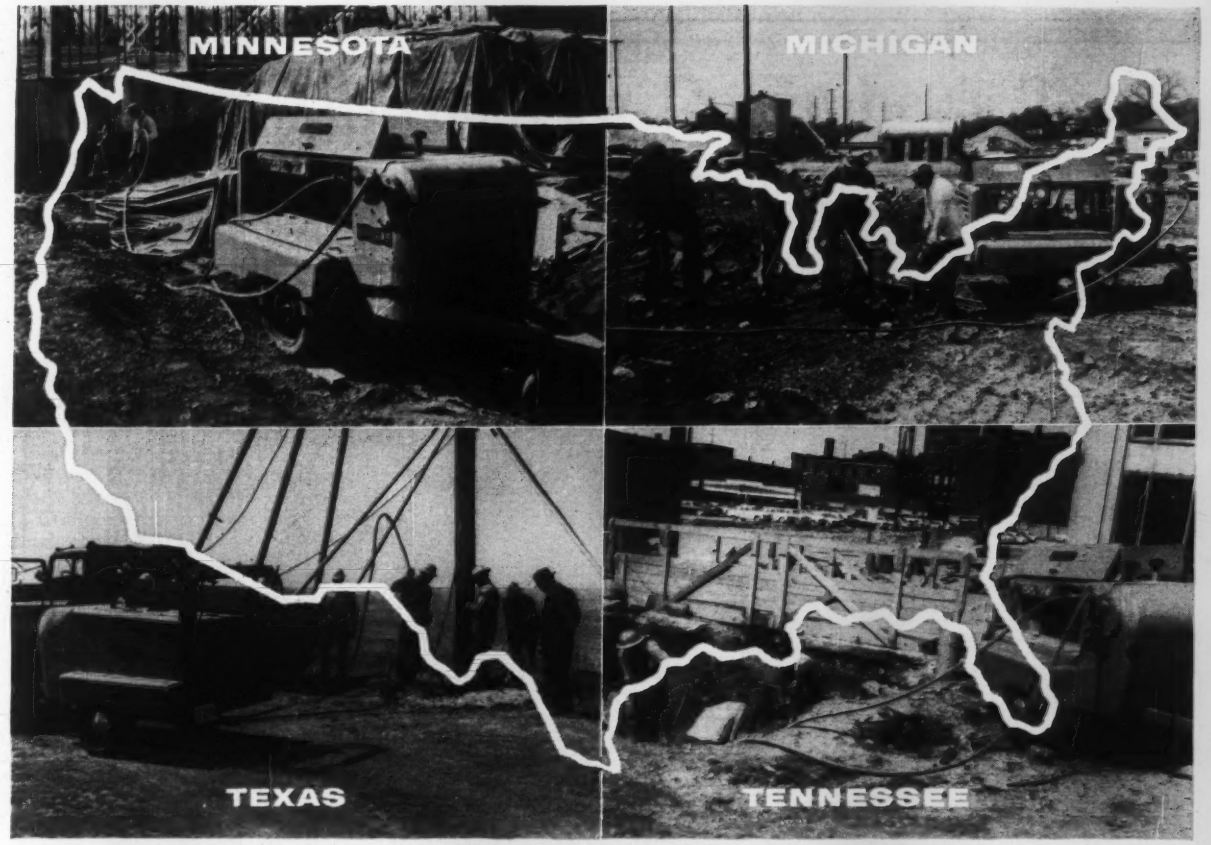
The Federal Home Loan Bank system has begun to move in line with the trend of easier money. Its actions, which may signal a general movement downward of mortgage interest rates, began in January, when Federal Home Loan Banks in Cincinnati and Topeka reduced to 4% the interest rates they charge member savings and loan associations.

The Cincinnati bank came down from 4½%, the Topeka bank from 4¼%. Then, on February 1, the big Home Loan Bank in Chicago took the first step below 4% with a reduction of its rate for one-year advances from 4¼% to 3.75%.

The movement by the Home Loan Banks to make borrowing cheaper followed the reduction in interest rates on their own borrowing.

Most observers believe that the eight banks that have not made recent cuts will do so in the near future.

(*B&F continued on page 105*)



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ACCESSIBILITY Here's an attractive, clean-styled Rotary Portable that you can get at, service easily, without skinned knuckles and bruised shins.

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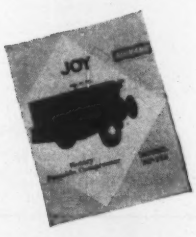

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WAGON DRILLS

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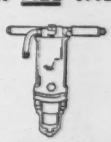
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January Awards Top December's Total

Contracts for month tally $1.25 billion to show 4% month-to-month gain; housing leads in private area

Construction contracts in January reversed the downward trend of recent months and, at $1.25 billion, bettered the December figure by 4%, ENR records show. Public construction awards were $738 million, or 6% above the December weekly rate, despite a 3% decline in state and municipal work. Federal projects showed a 93% gain over December, and even private work improved 2%.

Compared to a year ago, however, total contracts were down 24% with public work down 20% and private contracts lower by 30%.

The public sector accounted for 59% of contracts let in January. By far the largest increase, 280%, was in earthwork, irrigation and drainage projects. The $98.3 million Lewiston power plant at Niagara Falls was responsible for most of the increase. But even with this gain the total was 3% below that of one year ago.

Three big projects helped boost public housing contracts 108% above December to $88 million: a Capehart housing contract for $19.2 million in Florida, another for $16.6 million in South Carolina, and a $10.3 million development in Chicago. Public housing was ahead of January 1957 by 38%.

Waterworks projects had contract awards worth $23 million in January, a 41% improvement over December and 48% ahead of a year ago. Contracts for bridges, however, totaling $28 million were 51% below December and 57% under January 1957. Sewerage and unclassified public work showed gains in December, but highway contracts of $198 million and buildings other than housing at $176 million, logged 17% and 13% respectively.

• **Strength in private work**—In the private sector, industrial building and unclassified work provided the January gains. Industrial building awards rose 1% to $173 million. Included were a $60 million strip mill for Reynolds Metals in Alabama, a $31 million copper refinery for Kennecott Copper in Maryland, and a $13.5 million sintering plant for Inland Steel in Indiana. It is an indication of long-term confidence that these projects are going under contract despite a slackening in demand for aluminum, copper and steel. The award totals, however, still reflect a slump in investment for plant expansion when compared with year-ago totals. The January 1958 awards were 49% below January 1957.

• **Commercial contracts gain**—Commercial building perked up in January, and total awards reached $128 million. Though this was 3% short of December's weekly rate, it is 66% ahead of January 1957.

Contracts for mass housing topped all other types of private work with $182 million. This figure was 6% below December's weekly rate, however, and 39% under January 1957.

Building Cost Index Dips; Construction Cost Index Up

Building costs are down slightly in February as measured by ENR's 20-Cities Building Cost Index. A scheduled January 1 increase of 15 cents for St. Louis bricklayers was deferred to March 1, causing a drop in the U. S Building Cost Index. The February Building Cost Index is 515.78, down 1.01 points or 0.2% from the January figure of 516.79. By contrast the Construction Cost Index edges up 0.04% in February, compared to a 0.73% increase in January. The February index is a record 743.77. Both indexes are based on 1913 = 100.

Widespread unemployment in the St. Louis construction trades, estimated to be 10-15%, caused the St. Louis bricklayers, stone and marble masons union to postpone the proposed January 1 increase of 15 cents to March 1.

Atlanta common labor in both building and heavy construction received an increase of 5 cents an hour, bringing the current wage to $1.60. The boost raised the Construction Cost Index.

Engineering Construction Contracts—January '58

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Five Weeks—Thousands of Dollars (000 Omitted)

	January, 1958						Total U. S.			
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	January 1958	January 1957	% Change '57 to '58	Canada January 1958
Public										
Waterworks	417	5,002	3,078	1,756	4,208	8,584	**23,045**	15,608	+48	1,501
Sewerage	612	15,756	3,018	17,451	16,350	6,218	**59,405**	57,997	+ 2	8,053
Bridges	1,550	1,194	3,717	8,559	7,837	4,607	**27,464**	63,843	−57	2,089
Earthwork and waterways	1,140	104,401	5,617	.....	3,424	5,378	**119,960**	124,154	− 3	340
Streets and roads	3,634	23,165	28,451	63,145	44,770	34,967	**198,132**	265,903	−25	4,435
Public buildings, residential	4,792	7,704	44,349	11,194	19,756	.....	**87,795**	63,787	+38	1,563
Other public buildings	13,164	30,680	29,012	30,381	33,571	39,558	**176,366**	212,118	−17	8,270
Unclassified	3,638	13,218	10,870	1,762	8,212	7,745	**45,445**	118,778	−62	2,971
Total public	**28,947**	**201,120**	**128,112**	**134,248**	**138,128**	**107,057**	**737,612**	**922,188**	**−20**	**29,222**
Federal government (included in above classifications)	2,622	17,543	54,446	3,578	26,035	22,110	**126,334**	254,732	−50	5,270
Private										
Bridges	.....	.....	.....	.....	.....	.....	.....	450	....	.....
Industrial buildings	1,818	40,275	73,974	28,174	18,593	9,805	**172,639**	339,956	−49	24,700
Mass housing	18,957	85,413	13,210	14,370	41,759	7,984	**181,693**	295,655	−39	22,750
Commercial buildings	17,807	30,471	8,625	33,977	28,178	9,483	**128,541**	77,229	+66	5,400
Unclassified	730	15,281	985	2,023	19,135	174	**38,328**	28,230	+36	28,000
Total private	**39,312**	**171,440**	**96,794**	**78,544**	**107,665**	**27,446**	**521,201**	**741,520**	**−30**	**80,850**
Total Engineering Construction:										
January, 1958—5 weeks	**68,259**	**372,560**	**224,906**	**212,792**	**245,793**	**134,503**	**1,258,813**	.....	**−24**	**110,072**
December, 1957—4 weeks	56,291	187,888	141,205	189,500	248,441	143,575	**966,900**	.....	....	74,465
January, 1957—5 weeks	99,814	393,187	251,071	356,377	262,664	300,595	.....	1,663,708	....	119,682
%Change '57 to '58	−32	−5	−10	**−40**	−6	−55	.....	.....	....	−8

Open Shop Feud Is Reopened

Maryland open shop contractors test stabilization plan activity of Building Trades Council in federal court

A 1955 effort of AFL-CIO building trades unions and their contractors in Baltimore to inject a greater measure of stability in their labor relations, ran into another legal snarl last month.

In the most recent of several efforts to preserve open shop conditions in the area, the Associated Builders and Contractors of Maryland, and Selby-Battersby & Co., a local tile contractor, have asked the Fourth Circuit Court of Appeals to reverse a National Labor Relations Board ruling that refused to hold the Baltimore Building and Construction Trades Council, AFL-CIO, responsible for a strike that was conducted by five of its affiliated unions against Selby-Battersby.

The Council has asked the court for permission to intervene because of its "substantial legal and equitable interests". Among those it cites is the right "to represent the working man and his bargaining agents without annoyance, harassment or other undue interference by employers and employer associations opposed to the principle of organized labor".

The association, whose members are predominately open shop, has contended that the strike was an unlawful secondary boycott. It was aimed, they said, at forcing Selby-Battersby to commit itself to doing business with union contractors only. This, in turn, the argument goes, violated the right of employees to engage or not to engage in union activities without interference, domination or discrimination.

Root of the costly litigation that has spanned more than two years was a controversial plan adopted in 1955 to eliminate some of the labor strife that had plagued the area. Collateral effects of greater harmony within the ranks of union labor and union contractors, it was hoped, would strengthen the membership of the former, improve the economic position of the latter, and benefit the public.

The plan was called the Standard Agreement, which, for a time, was administered by a Joint Conference Board representing subscribing unions and contractors. Through standardization of various practices and conditions, including arbitration procedures, simultaneous labor contract expiration dates, elimination of feather-bedding and uniform working conditions, the agreement looked toward the elimination of strikes and work stoppages, jurisdictional or otherwise, and sought to prevent waste and delays and to promote peaceful and continuous employment.

As a further effort toward labor peace —so often threatened when union and nonunion men are put on the same job—the agreement, as later amended, committed subscribing contractors to subletting work to, or serving as subs for, only those contractors who subscribed to the agreement and had collective bargaining contracts with the AFL-CIO unions.

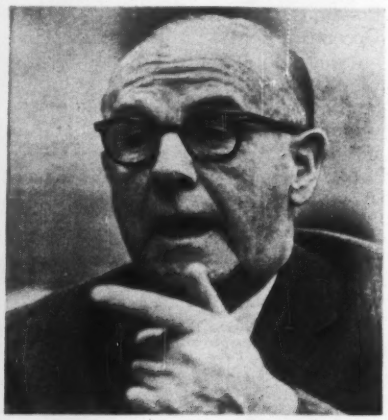
This clause, which some called a stabilization clause, proved to be the Achilles heel of the plan whose initial success surpassed the expectations of even its sponsors. Within the first few months of its operation, all members of the Associated General Contractors had subscribed, together with over 375 other general and subcontractors. Many months of construction ensued without time lost by labor disputes.

The controversial clause of the plan went into litigation obliquely. It was claimed by the open shop interests that the strikes were an attempt to enforce it, violated the self-organization rights of employees and constituted an unlawful secondary boycott.

During the early phases of litigation, the individual unions capitulated and settled, and the case dragged on through the NLRB's exoneration of the Council. Now, the Circuit Court is being asked to pin responsibility for the strikes on the Council and to close the door to similar activity in the future.

Meanwhile, the Baltimore stabilization plan, originally an adaptation of a Chicago plan, is in a state of suspension and the Joint Conference Board is no longer active.

Since the plan's suspension, the open shop group also has called the attention of the Senate Select Committee to the Baltimore situation, which raises two issues for possible investigation—secondary boycotts and union freedom from anti-trust laws.



FORMER UNION VICE PRESIDENTS Victor Swanson and Joseph S. Fay take the witness stand as the Senate Select Committee seeks to substantiate its charges in the . . .

Probe of Operating Engineers

The Senate Select Committee and the AFL-CIO Ethical Practices Committee are conducting simultaneous investigations of alleged irregularities and corruption within the ranks of the International Union of Operating Engineers.

Headed by William E. Maloney, the 270,000-member union is one of the 18 AFL-CIO building and construction trades unions. (Formerly there were 19, but the expelled teamsters union last week was dropped officially from the roles of the federation's Building and Construction Trades Department.) Jurisdiction of the operating engineers union covers operation and maintenance of such construction equipment as shovels, bulldozers, derricks, hoists and engines.

Bulk of the McClellan committee's time has been spent on two of the union's biggest locals—Local 3 of San Francisco formerly headed by Victor

Swanson, and Local 825 in New Jersey, where Joseph S. Fay, once powerful union boss, held sway.

The committee has charged "certain top officers" in the union with illegal conversion of union funds, dictatorial control of union affairs, collusion with employers and abuse of pension funds.

Mr. Swanson was suspended from office by the union after his unsuccessful attempt in 1956 to wrest the union presidency from Mr. Maloney. Mr. Fay was convicted 10 years ago of shaking down contractors on the Delaware Aqueduct. Both have served as international union vice presidents.

Questioning has been directed primarily at alleged misuse of union funds and power at national and local levels.

President Maloney, reportedly too ill to testify, has been accused by the rackets committee of dictatorial control of the union and misuse of union funds, largely through padded expense accounts.

In the course of the hearings, a Chicago contractor, S. A. Healy, invoked the Fifth Amendment, refusing because of possible self-incrimination to answer questions directed toward financial collusion, if any, with Mr. Maloney.

A report of the AFL-CIO's own investigation of the union will come up before the federation's Ethical Practices Committee at a meeting in Miami, Fla., this week.

Association Seeks Facts On Jurisdictional Losses

The National Association of Plumbing Contractors has asked its members to report all instances in which maintenance crafts in industrial plants have been performing work usually done by members of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry.

Facts on such encroachments, it says, are needed by the UA as a basis for investigation of the loss of such work from the plumbing industry.

The AFL-CIO building trades have long complained that the federation's industrial unions are gobbling up their jurisdiction and imperiling the method of construction by contract. Inability of the AFL-CIO to resolve the conflict has been the biggest threat to labor unity since the AFL-CIO merger in 1955.

In recent months contractors have begun to realize that their own welfare is also at stake (ENR Nov. 28, 1957, p. 87). Says NAPC: "Any threat to loss of jurisdiction of the UA is of vital interest to every contractor member of our industry".

Overseas Craftsmen

Association appoints a Middle-East coordinator

The Overseas Craftsman's Association has increased its facilities by the appointment of a Middle-East representative.

Founded in 1946, OCA is essentially a clearing house for overseas workers. Virtually every major engineering and construction firm in the country with foreign operations is a member, and the organization is supported by membership dues.

New Middle-East representative is Gerald F. Hunter, Beirut, Lebanon. He will coordinate OCA activities in the Middle-East, Asia, North Africa.

George E. Fischer, OCA executive secretary, said OCA plans appointment of representatives "in other strategic locations in the near future which ultimately will provide our members who are living and working overseas with a network of contact points which would eliminate the necessity of returning stateside in search of another assignment".

In its operations, OCA provides engineers, supervisors, administrators and other help for overseas work on a referral basis much the same as that of a personnel agency. Files on available workers are provided by the member firms.

The organiaztion also gathers and publishes information on bidding, financing and project planning around the world. The information is disseminated in a monthly bulletin called "Scuttlebutts", which contains rundowns on heavy construction, mining and petroleum engineering. Counseling services also are provided on taxes, legal matters, traveling and other problems pertinent to overseas work.

OCA has members in 63 countries and islands around the world. Last year, it sent some 3,000 workers overseas. Its headquarters are at 426 S. Spring St., Los Angeles 13, Calif.

Contractor Association Condemns TVA Wage Rates

A 5% wage increase granted January 1 to Tennessee Valley Authority construction workers has been criticized by a spokesman for Knoxville, Tenn., contractors.

Ed Cifers, president of the Knoxville chapter of Associated General Contractors, said the new rates are higher than those for private construction workers in the area. He also noted that President Eisenhower has urged management and labor to resist increases in an effort to halt inflation.

The TVA is required by law to pay rates prevailing for similar work in the vicinity (ENR Jan. 9, p. 108). TVA scales are accordingly figured on a seven-state basis.

Result, according to a TVA spokesman, is that "the rates negotiated are below the rates in some centers and above the rates in other centers."

Contractors Ask Labor To Help Reduce Costs

The National Constructors Association last week requested the help of the international AFL-CIO building and construction trades unions in cutting construction costs.

It has asked the unions to consider adoption of a 10-point program aimed at curbing wasteful labor practices. Proposal was presented by former NCA president John O'Connell to the building trades' Executive Council now meeting in Miami, Fla.

NCA is an association of contractors engaged primarily in oil refinery, utility and atomic energy installations.

Labor-Management Group Adopts Mutual Aid Plan

Another step toward closer cooperation between construction labor and management has been taken in the plumbing and mechanical contracting industries.

A new joint committee, known as the Joint Industry Program Committee was formed last month. Its first official meeting will be held in Washington, D.C., on May 6.

The committee represents the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry (AFL-CIO), the National Association of Plumbing Contractors, and the Mechanical Contractors Association of America.

According to its sponsors, the committee will supplement the work of the group's eight-year-old industrial relations council and will "seek to promote wider cooperation between management and labor for the positive and constructive benefit of all those engaged in the affected industries and the public as well."

Chairmanship of the committee will rotate among the groups annually. First chairman is Joseph H. Spitzley, president of MCAA.

(*Labor continued on page 108*)

Hiring Halls Put on Tightrope

NLRB declares all hiring hall contracts must contain objective standards to avoid unlawful discrimination

Union hiring hall practices in the construction industry were dealt a critical blow last month when the National Labor Relations Board clamped down on the activities of three Associated General Contractor chapters and the laborers union.

In the most drastic of all its hiring hall rulings, the board came up with the proposition that even a nondiscriminatory hiring hall is illegal unless the hiring hall contract contains objective standards to assure its lawful operation.

Member Abe Murdock, who has since retired, issued a strong dissent. He said the hiring hall arrangement is not itself unlawful but the manner in which it is operated—as here—may be.

• **System**—What the AGC (Mountain Pacific, Seattle and Tacoma chapters) and the local laborers union had done was simple.

They had provided in their labor contract that the union would be "responsible for the recruitment of employees" and that AGC employers would "call upon the local union" to furnish the workers they needed.

The union maintained a hiring hall in Seattle. Those looking for work as laborers were registered, numbered and dispatched in numerical rotation. Nonunion workers were sent to jobs only after all available union members had been dispatched. No systematized procedure existed for hod carriers.

Trouble arose when a nonunion hod carrier claimed he had been discriminated against in his search for work. The board, including Mr. Murdock, said he had been.

• **Issue**—Ticklish question faced by the board was whether a union hiring hall by its very nature is a discriminatory arrangement and exposes to legal liability both the contractor and the union that use it.

By law, workers have the right to join or not to join unions. Only exception outside of right-to-work-law states is where an authorized union shop agreement exists. (This is of little use to construction unions unless the prehire contract is legalized.) Employers are forbidden to interfere with that right or, in their employment practices, to encourage or discourage union membership. Unions are subject to the same general prohibition and are not allowed to induce or force employers to discriminate against employees.

In his dissent, Mr. Murdock said the board ruling means that "mere exclusive referral by a union constitutes discrimination".

He calls this a "novel approach" inconsistent with the law. "For more than seven years", he said, "it has been well established board law, judicially approved in every Circuit Court of Appeals in which the issue was raised, that an exclusive nondiscriminatory hiring hall is not per se unlawful".

While the board, which apparently paid little attention to the peculiar problems of the construction industry, has not outlawed all hiring hall arrangements, it has told contractors and unions that they must negotiate objective standards for referral of applicants if they want to stay within the law.

But Mr. Murdock says the board has failed to provide a "precise test" of lawfulness and that contractors and unions may find they've guessed "wrong" in trying to comply with the law as now interpreted.

In addition to the litigation and destruction of the hiring hall arrangement, the penalty in this case was restitution of back pay from March 15, 1956.

Four Trades Granted Wage Boosts of 35 to 40 Cents

A three-week strike that idled nearly 10,000 construction workers in 15 central and Western Arkansas counties ended last month when the Associated General Contractors concluded unprecedented three-year contracts with four unions—carpenters, iron workers, cement finishers and laborers.

In two western counties, where only the laborers were involved, a two-year contract was signed for 10 cent wage boosts each year.

Wage increases for the four trades in the other 13 counties ranged from 35 to 40 cents.

A spokesman for the AGC hailed the three-year contracts as a "good deal for everybody" if the economy continues to expand and the cost of living increases. If they don't, he said, the contractors "have just bought themselves a bad deal".

First to settle were the cement finishers, whose contract provides for fixed deferred increases plus an automatic cost-of-living increase if the Consumer Price Index continues to climb in 1959. The union's 35-cent package is payable in five installments—5 cents now, 10 cents October 1, 5 cents January 1, 5 cents July, 1959, depending on the CPI, and 10 cents January 1, 1960. Old scale was $2.85.

Biggest boost went to the iron workers, who last year received 15 cents less than the carpenters. They receive 10 cents now, 7½ cents July 1, 5 cents January 1, 10 cents July 1, 1959, and 7½ cents January 1, 1960. Their former rate was $2.95.

Threat of Licensing Seen In Presidential Message

AFL-CIO President George Meany has registered serious objections to the "big brother" concept of government in labor matters.

Commenting on President Eisenhower's labor legislation proposals to Congress, he said some of the recommendations could lead to a licensing system for all unions.

"In a democratic country", he asserted, "there must never be rigid governmental regulation of voluntary associations of people. Some of the proposals in the Presidential message could lead eventually to such action to the detriment not only of trade unions, but to all democratic organizations".

At the same time, Mr. Meany pointed out that the AFL-CIO recommended disclosure legislation for health, welfare and pension plans long before the Administration became interested in this field. Such legislation, he declared, has been blocked by employer groups to which the Administration should now direct its appeal.

The President's labor proposals will be on the agenda of the AFL-CIO Executive Council when it meets this week in Miami, Fla.

Welfare Fund and Boycott Proposals Are Criticized

Any attempt to place employer administered health and welfare plans under government regulation is "unreasonable and unjustified," according to L. C. Rogers, president of Associated General Contractors of America.

He told the AGC of Minnesota last month that abuses uncovered by Congress have taken place in plans under joint labor-management trusteeship.

"In too many cases, the trustees from labor have been both ignorant and aggressive and in some cases the trustees from management have been apathetic and disinterested," Mr. Rogers said.

He also warned contractors against relaxation of present laws prohibiting secondary boycotts against employers on construction sites.

"We object to punishing the innocent general contractor victimized by the secondary boycott," he said, "where the union has been unable or unwilling to organize the employees of another general contractor or specialty subcontractor on the same project."

Both proposals objected to by Mr. Rogers have the support of President Eisenhower, who has urged Congress to adopt them.

Sub Clause in Court

NLRB ruling on employee discrimination appealed

A recent National Labor Relations Board decision questioning the right of a general contractor to refuse to do business with a subcontractor because of the latter's union status is headed for court review.

The board had held that two Associated General Contractor chapters and Local 3 of the operating engineers union had committed an unfair labor practice in forcing a field engineering subcontractor to take its employees off a Travis Air Force Base job. Employees were members of Engineers and Scientists of California, an independent union. The action occurred under a subcontractor clause in the AGC contract with Local 3 requiring subs of the AGC contractors to use members of Local 3.

An appeal has been filed by Local 3 in the Circuit Court of Appeals, Washington, D. C. The subcontractor involved in the dispute—St. Maurice, Helmkamp & Musser, a Marysville, Calif., field engineering firm—has appealed to the Circuit Court of Appeals in San Francisco. And this week the Northern and Central California chapters of AGC will decide whether to appeal also.

Said one of the appellants: "In view of the importance of this issue to labor-management relations, we think it's necessary to get a clear ruling. The board's decision was so ambiguous that we don't know where we stand." (Legal issue is discrimination against employees because of union affiliation. Board ruled the discrimination can occur through coercion of one employer by another. Two members said the subcontractor clause itself was unlawful even before the effort to enforce it occurred.)

The fact that a majority of the board upheld the clause is viewed as a victory for the union. A union spokesman explained: "The board said the contract is lawful. It also said we can't strike to enforce the subcontractor clause. But there are other ways to implement it."

Firm Has Own School

Bricklayer apprentices given formal training

A Wilmington, Del., masonry contractor has successfully completed one year of operation of a company established and financed pre-job school for apprentice bricklayers.

Set up by Clarence Burris & Sons, Inc., which has about 200 employees, the school is starting its second term with 15 apprentices enrolled. Last year, 27 took the course and 12 became Burris employees.

Classes in all phases of masonry work run from January to May on an 8:00 a.m. to 4:30 p.m. schedule. Instructors are Burris foremen, assisted by skilled mortar mixers and hod carriers from the company work force.

The school was established at an estimated cost of $20,000. Running expenses this term are expected to approach $12,000. Purpose of the school, according to the firm, is to attract young men of high caliber to the trade and to accelerate the apprentice training period.

During the school course, apprentices alternately spend two weeks in class and two weeks on a job, the latter at apprentice rates. Those who join the Burris staff after completing school are paid wages above the apprentice minimums and are elligible for fringe benefits.

Company officials, who plan to continue the school until it develops 20 to 25 good apprentices, are enthusiastic about the results. "Helping these boys develop," said one, "has given me the finest sense of achievement of my business life" and has demonstrated "that you can develop craftsmen with skill and pride in their work in far less time than it ordinarily takes."

Arizona Contractors Lose Prevailing Wage Dispute

An attempt by Associated General Contractors of New Mexico to restrain State Labor Commissioner Charles W. Burrell from imposing a new schedule of prevailing wages for public works projects was struck down January 15 by District Judge David Carmody of Santa Fe.

A week later another request for an injunction was filed by the City of Albuquerque.

The New Mexico law requires that every public construction contract contain a provision stating the minimum wages to be paid. The wages are those determined by the state labor commissioner to be prevailing in the area where the project is located.

In dismissing the motion to render the injunction permanent, the court upheld all five points advanced by the commissioner:

- The contractors are volunteers and are not required to bid on road contracts.
- No irreparable injury has been claimed.
- The state, which was not named in the suit, is an indispensable party and did not consent to be sued.
- The controversy is one within the Executive Branch of the government and the court lacks jurisdiction.
- The determination of wages is a discretionary function and the commissioner's action was properly taken under the law.

In its petition, the City of Albuquerque contends that the commissioner's determinations do not reflect the prevailing minimum wage rates and were made without any investigation. If the rates remain in effect, the city says, the cost of construction will go up an estimated 20% and the city will not have enough funds to carry out its public works program.

The new suit also attacks the constitutionality of the state's prevailing wage law as an unlawful delegation of legislative power to the State Labor Commissioner.

Labor Briefs . . .

- **Seaway charge**—NLRB has opened hearings against a St. Lawrence Seaway prime contractor, Morrison-Knudsen Co., and one of its subsidiaries on unfair labor practice charges. Asserted basis of one of the charges is assent to union charging of fees to workers for the privilege of working.
- **Education**—The St. Paul Trades and Labor Council and the Workers Education Department of the University of Minnesota will conduct a course in writing and public speaking for union officers and members February 3-March 24 at the Labor Temple in St. Paul.
- **Planning ahead**—Electrical workers Local 683 is the eighth Columbus, Ohio, building trades union to conclude a new labor contract prior to expiration of its present one. Contract becomes effective June 1 and calls for a 19 cent hourly wage boost. Goal of local contractors and unions is the negotiation of contracts at least 10 months in advance of expiration dates.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, P.O. Box 12, New York 36, N. Y.

Bids: February 20, 1958.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 20th day of February 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Herkimer	RC 58-6	Herkimer-Middleville, S.H. 460, BR. No. 2	....	Cleaning & Painting Br.	$400 Plans $2	$7,100
Herkimer & Oneida	M 58-1	Movable Dams 13 & 14 Burdick's Bridge E60	....	Cleaning & Painting 2 Movable Dams and Br.	$650 Plans $10	12,600
DISTRICT No. 5, G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie	PSC 17043	Bridges Carrying Seneca Street (C.R.) Over Pennsylvania R.R. & New York Central R.R.	0.22	Asphalt Concrete, 0.22 Mile, Including Reconstruction of 2 Brs., 1 Beam Br. Over Pennsylvania R.R., 3 Spans Total 86', 1 Beam Br. Over New York Central R.R., 3 Spans Total 88'	$6,000 Plans $2	115,000
Niagara	M 58-2	Pendleton Guard Gate No. 18	....	Cleaning & Painting Guard Gate	$500 Plans $10	9,400
DISTRICT No. 8, K. G. Rauch, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Orange	FASS 58-2	Warwick-Smith Corners Road, Part 2, County Road No. 1, Project S-484(1)	.31	Asph. Conc.=0.27 Mile: Misc. Work=0.04 Mile: Prestressed Conc. Beam Br., 3 Spans Total 170.3 Feet	$24,000 Plans $2	428,000
Westchester	FISWC 58-1	New York State Thruway—Southern West. Connection—Sub. 11 (New York City Line-Tuckahoe Road) Project I-1100(4), Interstate Route 502	0.16	Grading, Drainage & Misc. Work 0.16 Mile, including Ped. Overpass—Weld. Girder 5 Spans Total—315.8 Feet: Ped. Overpass—Weld. Girder 2 Spans Total—199.5 Feet	$10,000 Plans $3	177,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Sullivan	FESS 58-1	Barryville-Eldred, C.R. 11 Project ER-22(2)	0.82	Asph. Conc. 0.82 Mile Including Prestressed Concrete Beam Bridge Span 52.3'	$18,000 Plans $2	319,000
DISTRICT No. 10, M. E. Gotl, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx	FICBE 58-1	Cross Bronx Expressway—Contract IF (University Ave. to Anthony Ave.), Interstate Route Connection No. 511. Project I-1084(31)	0.98	Demolition	$43,000 Plans $2	789,000
Suffolk	OPRC 58-1	Ocean Parkway NRH-OP 33-1	7.14	8" Cem. Conc. Pavt., 25' Wide	$150,000 Plans $3	2,501,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: March 7, 1958

Construction of S.E. Third Ave Bridge Fort Lauderdale, Florida

Sealed bids or proposals, addressed to City of Fort Lauderdale, Florida, and marked Project No. 627 "S.E. Third Avenue Bridge across New River" will be received at the office of the City Commission of Fort Lauderdale, City Hall, Fort Lauderdale, Florida, until 11:00 A.M., E.S.T., March 7, 1958, and at twelve o'clock noon on said date they will be publicly opened and read aloud.

The project consists of the construction of a double leaf rolling lift bascule span with all its appurtenances, steel and prestressed concrete approach spans, and filled approaches between retaining walls.

Instructions to Bidders, Proposal, Form of Agreement, Form of Construction Bond, Specifications, and the Plans may be examined at the office of the City Engineer, City Hall Annex, City of Fort Lauderdale, Florida, on and after 9:00 A.M., January 7, 1958, or copies of same may be obtained there.

Plans and specifications may also be examined at the offices of J. E. Greiner Company, 1106 N. Charles Street, Baltimore, Maryland and J. E. Greiner Company and Associates, First National Bank Building, Tampa, Florida.

A deposit of $25.00 will be required for each copy of the Contract Documents which deposit will be refunded, to bidders, upon return of the Documents in good condition, within ten days after the opening of bids.

Each proposal must be accompanied by a certified check in the amount of 2% of the total amount of the bid, made payable jointly to City of Fort Lauderdale, Florida and the bidder, (i.e., City of Fort Lauderdale, Florida or John Smith, Inc.) as assurance that the bid is made in good faith. This check shall be retained by the City as liquidated damages should the bidder refuse or fail to enter into a contract with the City for the execution of the work, in the event the proposal of the bidder is accepted.

Public Liability and Property Damage Insurance and Construction Bond will be required.

The City Commission reserves the right to waive any informalities in or reject any or all bids and to accept the bid most favorable in the interest of the City, after all bids have been examined and canvassed.

W. J. Veeder
City Manager

January 7, 1958

OFFICIAL PROPOSALS

Bids: February 27, 1958

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 27th day of February 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name
DISTRICT No. 1, L. G. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York		
Albany & Rensa.	TABS 58-1	New York State Thruway—Berkshire Section, Subdivision B-1, Hudson River Bridge and approaches

Miles	Type	Deposit	Estimated Cost of Work
1.05	Reinforced Concrete Pavement of Bridge Deck	$60,000 Plans $5	$1,103,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection, of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Engineering News-Record

Reaches Your Local Contractors

Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

OFFICIAL PROPOSALS

Bids: February 25, 1958

Contract NYA—790.003

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
INTERNATIONAL HOTEL
LANDSCAPING

Sealed proposals for landscaping in the area in the vicinity of the International Hotel at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. on Tuesday, February 25, 1958, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, February 6, 1958

Bids: February 18, 1958

Public Auditorium Authority of Pittsburgh and Allegheny County

1046 Union Trust Building
435 Fifth Avenue
Pittsburgh 19, Pennsylvania
Notice to Bidders

You are hereby notified, in accordance with Bulletin (Addendum) No. 1, issued December 12, 1957 that

Separate and sealed proposals will be received at the office of the Public Auditorium Authority of Pittsburgh and Allegheny County, 1046 Union Trust Building, Pittsburgh 19, Pennsylvania, until 11:00 o'clock A.M. E.S.T., Tuesday, February 18th, 1958, and will be publicly opened and read beginning at 11:30 A.M. E.S.T., Tuesday, February 18th, 1958 in the Allegheny County Bar Association Meeting Room, 9th Floor, City-County Building, Grant Street, Pittsburgh 19, Pennsylvania, for the separate contracts in accordance with plans and specifications previously issued.

You are hereby informed that Bulletin (Addendum) No. 2 dated January 17, 1958, to the Specifications and Contract Plans for the construction of the Auditorium for Public Auditorium Authority of Pittsburgh and Allegheny County, Pittsburgh, Pennsylvania, is available in the office of Mitchell and Ritchey, architects, 1019 Plaza Building, Pittsburgh 19, Pennsylvania. This addendum shall be incorporated with the original Specifications and Contract Plans and the modifications, corrections, clarifications and adjustments contained in Bulletin (Addendum) No. 2 shall take precedence over any and all information previously issued.

PUBLIC AUDITORIUM AUTHORITY OF
PITTSBURGH AND ALLEGHENY
COUNTY
NICHOLAS STABILE, SECRETARY

OFFICIAL PROPOSALS

Bids: March 10, 1958

Youth Center Building

Sealed proposals for Building, Mechanical, and Electrical Work for the Youth Center Building, Dearborn Civic Center, Dearborn, Michigan, will be received by the City of Dearborn, Michigan, at the office of the City Clerk in the Municipal Building, Michigan Avenue and Schaefer Road, until 2:00 P.M. March 10, 1958 and will immediately thereafter be publicly opened and read aloud.

One award will be made for building, mechanical, and electrical work.

The contract documents are on file and may be examined at the office of the Architects and Engineers during business hours. Copies of the documents may be obtained by depositing at the Architects and Engineer's office cash or check in the amount of $30.00, which amount will be refunded if the complete documents are returned in good condition within 10 days after the opening of bids.

Proposals must be submitted in the form provided therefor by the Architects and Engineers. A certified check or a cashier's check payable to the City of Dearborn, Michigan, in an amount not less than 5 percent of the base bid, shall be submitted with each proposal, subject to the conditions set forth in the Instructions to Bidders.

The accepted bidder will be required to execute performance and lien bonds, each for the full amount of the contract.

No proposal may be withdrawn for at least 60 days after the scheduled closing time for receipt of proposals.

The City of Dearborn reserves the right to waive any informality in any bid, or to reject any or all bids, in whole or in part, should it be deemed for its best interests so to do.

CITY OF DEARBORN, MICHIGAN
JOSEPH CARDINAL
City Clerk

Harley, Ellington & Day,
Architects and Engineers
153 E. Elizabeth St.
Detroit 1, Michigan

U. S. Government

GOVERNMENT OF DISTRICT OF COLUMBIA, DEPT. OF SANITARY ENGINEERING, D. C., January 17, 1958. SEALED PROPOSALS will be received in Room 404, 499 Pennsylvania Avenue, N. W., Washington 1, D.C., until 2 PM, EST, February 28, 1958, and then publicly opened and read for construction of 12'—0" Diameter Stormwater Sewer, East Capitol Street, between Burns Street and Texas Avenue, consisting of approximately 3-177 lin. ft. 12'—0" diameter brick and reinforced concrete masonry in tunnel. Proposal forms, plans and specns. obtainable from Supervisor, Bid & Contract Section, Procurement Office, D. C., Room 404, 499 Pennsylvania Avenue, N. W., upon deposit of a certified check for $50.00 per set, payable to Collector of Taxes, D. C. (Tel. NA 8-6000, Ext. 2378).

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5017) will be received at Huron, South Dakota until March 4, 1958, for furnishing labor and materials for Power System Operations Office Building at Watertown, South Dakota, Missouri River Basin Project. Location near Watertown, South Dakota. Principal items are 1,450 cu. yds. excavation; 120 cu. yds. concrete; constructing power system operations office building; and other work. Completion time 200 days. For particulars, address Bureau of Reclamation, P. O. Box 825, Huron, South Dakota; P. O. Box 2553, Billings, Montana; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Department of Commerce, Bureau of Public Roads, January 28, 1958. SEALED BIDS will be received at the office of the Bureau of Public Roads, Gatlinburg, Tennessee, until 11:00 a.m., E.S.T., FEBRUARY 28, 1958, for Project 1B3, Great Smoky Mountains National Park, Swain County, North Carolina. Grading, Draining, Base Course and other work from Kephart Prong 3.893 miles toward Newfound Gap. The approximate quantities of the more important items are: 655,000 cu. yd. Excavation, 26,000 tons Crushed Aggregate Base and 6,985 lin. ft. Culvert Pipe. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the office of the Regional Engineer, 1440 Columbia Pike, Arlington, Virginia, or at the address given above. H. J. Spelman, Regional Engineer.

OFFICIAL PROPOSALS

Bids: February 19, 1958

State of Rhode Island And Providence Plantations Department of Administration Division of Purchases

NOTICE TO BRIDGE CONTRACTORS

Sealed Proposals addressed to the Division of Purchases, for the construction of the following project will be received by the Division of Purchases at the office of the State Purchasing Agent, 125 State House, Smith St., Providence, R. I. until 11:30 A.M. on the 19th day of February, 1958, at which time they will be opened and read in public:

R. I. Contract No. 5851, F. A. Project No. S-0257(1), Hamlet Avenue Bridge located on Hamlet Avenue in the City of Woonsocket, R. I. A 3-Span Continuous Welded Steel Deck Girder Bridge, with spans 80'—190' and 80' and including the following principal items of Road and Bridge Work: 600 tons Structural Steel, 120 tons Steel H Piling, 110 tons Reinforcement Steel, 2,100 cu. yds. of Concrete, 77,000 cu. yds. Road, Channel and Structure Excavation, and 20,700 sq. yds. Bituminous Pavement on Stone Base.

Bids for the above work must be made on blanks furnished by the Department of Public Works, Division of Roads and Bridges. Plans, specifications and special provisions may be examined at Room 125 State House or 232 State Office Building, Providence, R. I. on and after Wednesday, January 29, 1958, every week day except Saturdays and holidays between the hours of 8:30 A.M. and 4:30 P.M. Blanks for submitting proposals may be obtained through the office of the State Purchasing Agent at the address above stated. A deposit of $50.00 shall be made for each set of contract documents, which will be refunded if plans and specifications are returned in good condition within two weeks after the opening of bids.

A certified check or bid bond payable to the State of Rhode Island, or cash, in the amount of $25,000.00 must be furnished by each Bidder. This Proposal Guaranty will be returned after the contract has been executed unless forfeited in accordance with the stipulations in the Proposal. A performance bond of one hundred (100) percent of the contract price with a satisfactory surety company will be required of the successful Bidder. The Division of Purchases reserves the right to reject any or all bids.

WAGES OF LABOR: Chapter 290 of the General Laws, 1938, as amended, requires that "the contractor to whom the contract is awarded and any sub-contractor under him shall have ordinarily paid the prevailing rate of per diem wages and shall continue to pay the prevailing rate of per diem wages and the general prevailing rate for regular, holiday, overtime and other working conditions to all workmen needed to execute the contract or work."

Such a schedule of prevailing wage rates of per diem wages in the locality in which the work is to be performed for each craft, mechanic, teamster, laborer or type of workman needed to execute the contract or work has been established on a minimum hourly basis and is on file in the office of the State Department of Labor. The contractor shall pay not less than the said minimum hourly wage rates and not less than the general prevailing rate for holiday, overtime and other working conditions.

On State, City and Town Projects, Chapter 291 of the General Laws of 1938, as amended, requires that Rhode Island citizens be given preference in employment.

SUBLETTING OR ASSIGNING THE CONTRACT: The attention of Bidders is directed to the Standard Specifications and Special Provisions covering subletting or assigning the Contract.

DEPARTMENT OF ADMINISTRATION,
DIVISION OF PURCHASES
By: Joseph L. Byron,
State Purchasing Agent.

Bids: February 25th, 1958.

Contracts TN-10C and TN-10D

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:

Until 11 A.M. on Tuesday, February 25, 1958

For Throgs Neck Bridge Contract No. TN-10C, Steel Superstructure—Bronx Approach, Borough of The Bronx in The City of New York. The bid must be accompanied by a deposit in the amount of $250,000.00.

and

For Throgs Neck Bridge Contract No. TN-10D, Steel Superstructure—Queens Approach, Borough of Queens in The City of New York. The bid must be accompanied by a deposit in the amount of $250,000.00.

Bidders may submit bid for either one or both of the above contracts.

Plans, specifications and contract documents may be purchased at the office of the Authority for $30.00, which will not be refunded.

EMPLOYMENT OPPORTUNITIES

(Continued on pages 113-115)

REPLIES (Box No.): Address to office nearest you
c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Superintendent thoroughly qualified, large sewer & watermain installations. Permanent, N. Y. State. P-6844, Engineering News-Record.

Assist. Prof.—To teach undergrad. courses in surveying and highway engineering. Salary depends on qualifications. Dept. of Civil Eng., Univ. of N. Dakota, Grand Forks, N. Dak.

Structural Steel Detail Draftsman. One or two years experience—structural or miscellaneous steel. Good starting rate, vacation, hospitalization-accident-life insurance plan. Send brief resume to: Chief Engineer, Michigan Fabricating and Welding, Inc., P. O. Box 567, Jackson, Michigan.

Detailer & Checker Structural Steel. Must be experienced. Hospitalization and retirement benefits. Give references, age, and salary expected in application. Barber & Ross Company, 2323-4th Street, N.E., Washington, D. C.

Wanted—Licensed Civil Engineer for County Engineer. State age and experience. Greenfield, Adair County, Iowa.

Hydraulic Engineers—Civil Engineer Graduates—All grades, interested or experienced in Stream Flow Measurements, analysis of Hydrologic data, Hydraulic design criteria for dams, channels and bridges for regulatory agency. Duties include review of plans and specifications, report writing, operation of stream-gaging network, interpretation of stream flow data, field investigations and inspections, with some travel and public relations. Salary depending on experience, Location Harrisburg, Pennsylvania. P-6828, Engineering News-Record.

Established trade association needs individual familiar with construction problems and labor relations. Send resume and salary requirements to Associated General Contractors of Mass., Inc., 581 Boylston St., Boston 16.

POSITIONS VACANT

Service Managers job available for leading equipment distributor located in the East. Applicant must have managerial as well as actual construction experience in earth moving machines, diesel engines, and power shovels. Please address reply to P-7142, Engineering News-Record.

Chemist to take charge of laboratory for sewage & water analyses. Must have background of sanitary laboratory experience including bacteriology. Salary dependent on qualifications with maximum at $6,000. Furnish details of education, experience, age, references & availability to Supt. of Waste Treatment Plant, City Hall, Waterbury, Conn.

Experienced Sewer, Grading and Paving Foremen—Steady Employment to qualified Men—Northeastern Ohio. Please reply, giving qualifications and experience, to P-7121, Engineering News-Record.

Sales Manager and sales force wanted for large prestressed concrete manufacturing firm in Florida. Engineering background desired. Contact P-7073, Engineering News-Record giving full background information and desired salary, etc.

Designer-draftsman, preferably in 30's with mechanical and electrical experience, capable of making plumbing and electrical layouts for one-family and row house developments in Florida, Caribbean and Middle East. Ability to write outline specifications desirable. Occasional travel involved. Salary $150-$175 per week. Retirement benefits, life insurance and medical care included. P-6977, Engineering News-Record.

Civil Engineers: 2 or 3 years minimum college education. Salary commensurate with education, training, and experience. Civil Service position. Apply City Manager, City Hall, Kenosha, Wisconsin.

Wanted—Chief Engineer capable of administering highway, industrial structure and other civil engineering design and planning for an Ohio Consultant. Licensed civil engineer with at least 20 years experience apply with picture, references, age and complete resume of education and experience stating salary requirements. P-7197, Engineering News-Record.

POSITIONS VACANT

Civil Engineer for design and construction of Municipal street and sewer projects. Starting salary will be between $426.00 and $561.00 depending on qualifications. Apply to the Civil Service Commission, City Hall, Springfield, Illinois.

Wanted—Man interested form design and research. Write fully. P-7199, Engineering News-Record.

Graduate Civil Engineer or Architect for permanent position with long-established national organization. Technical and promotional work; cover Pennsylvania. Car furnished. Summary should include experience, education, salary requirement, etc. P-7194, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

Sales engineer, for midwest territory, to represent established manufacturer of wellpoint dewatering equipment. Preference will be given man with knowledge of soils and pumping equipment. State education, age, experience, salary. SW-7140, Engineering News-Record.

EMPLOYMENT SERVICE

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L., P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Construction Manager, available soon for responsible connection Western U. S. Experienced, 25 yrs. Supervising, Manageing, Estimating, bidding of Industrial, Commercial, Municipal and Federal building and heavy Construction for General Contractors. PW-6992, Engineering News-Record.

(Continued on opposite page)

EMPLOYMENT OPPORTUNITIES

DISPLAYED

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

—RATES—

UNDISPLAYED

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Position Wanted ads take ½ of above rate.
Box Numbers—count as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.
Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD
P. O. Box 12, N. Y. 36, N. Y. February 20th issue closes February 10th

POSITIONS WANTED

(Continued from opposite page)

Construction Superintendent now employed desires change. Industrial, commercial, chemical plants. Atlantic States preferred. PW-7020, Engineering News-Record.

Project Manager or Superintendent for architect or contractor available February. Now completing luxury type 325 room El San Juan Hotel. Working knowledge Spanish and French. Also experienced heavy construction and housing. Age 44, single. Airmail replies to: Allen McSherry, P.O. Box 6034, Loiza Station. Santurce, Puerto Rico.

Superintendent or Estimator thoroughly experienced and qualified to handle all phases of job from bid to completion: Sewage and Water Treatment Plants, Power Plants, Building Const., Bridges, Foundations, Cofferdams, Piling, Reinforced Concrete. PW-7010, Engineering News-Record.

Canadian Consulting Engineer, civil, seeks short term foreign jobs. Salary or fee basis. PW-7025, Engineering News-Record.

Field Engineer—Asst. Supt.—Age 27, 9 yrs. exp.—Hwys., bridges, bldgs. Good N.Y.C. labor connections in bldg. const. want steady position—good references—available Feb. 1st. PW-7023, Engineering News-Record.

Construction Superintendent now employed desires job with general contractor on estimating, sub-contractors, shop drawings, scheduling, costs, etc. PW-7034, Engineering News-Record.

Electrical Engineer. Thirty-five years experience all phases of electrical and mechanical construction and operation. Married, no children, free to travel. Excellent health. Layout and design. Prefer field and construction. PW-7127, Engineering News-Record.

Civil Engineer, 33, BSCE, 9 years experience general construction. Field layout, superintendent, expediting, co-ordinating, estimating, project engineer. Prefer Detroit area but will relocate. PW-7129, Engineering News-Record.

Purchasing—Broad experience heavy construction and general contracting procurement. Excellent administrative experience with competitive bidding and sub-contractors. Relocate own expense. PW-7138, Engineering News-Record.

Construction Engineer-Superintendent. Exceptionally broad experience, both engineering and supervision, all phases watersupply, sanitation, bridge, sub-aqueous, tunnel and heavy constructions. Fully familiar with modern construction methods, organization, production and costs. Available April for responsible field supervision constructions. Age 57. Registered Civil. PW-7143, Engineering News-Record.

Construction Executive, 30 years experience in all phases of industrial and heavy construction. Power plants, chemical plants, refineries, mechanical installations and piping, buildings, locks, dams, foundations, and tunnels. Interested in connection with aggressive company doing competitive contracting and promotional sales work. Contract negotiations, estimating and pricing accurate. Personal industrial contacts. Top labor relations with all crafts. Primary education M.E. Reply PW-7158, Engineering News-Record.

Soils & Material Engineer, Single, 39, highly qualified, over eight years office & field experience. M.S. (Soil Mech.) & M.S. (Higwy. Engg.), special experience in soils and foundations. Regd. P.E. present emoluments over $10,000. Available April, any location. PW-7159, Engineering News-Record.

(Continued on page 15)

CONSTRUCTION ENGINEERS

Foreign Employment

Career opportunities for graduate chemical or mechanical engineers in Saudi-Arabia. Minimum 5 years experience supervising construction of industrial buildings, oil processing and handling facilities. To supervise actual construction by contract or service organization personnel involving control over construction methods, scheduling, expediting and progress; utilization of men and materials; and the inspection of workmanship for compliance with plans and specifications. Liberal salary plus all-inclusive benefits conducive to large savings. Excellent community facilities.

Write outlining personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 264

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, NEW YORK

New York State Announces NEW OPPORTUNITIES For EXPERIENCED HIGHWAY and BRIDGE ENGINEERS

STARTING SALARY—$6140
5 Annual Increments to $7490
Excellent Promotion Policy

QUALIFICATIONS:

Degree + 2 Years Experience
or
Education and Experience
Totaling 6 Years

For Details Write

WARREN S. WELCH
Director, Public Works Personnel
State Office Building
Albany, N. Y.

STRUCTURAL ENGINEERS DESIGNERS DRAFTSMEN

Prefer several years or more experience in any of these fields:

BRIDGES

BUILDINGS
EXPRESSWAYS
HYDRO PROJECTS
TEST FACILITIES*

Will consider lesser experience with good educational background, including several recent graduates to round out a planned expansion program. Occasional openings for combination field men. These are permanent additions to our regular staffs.

We are professional engineers engaged primarily in design which covers a wide scope of practice. The variety and unusual character—for example, the proposed world's largest bridge project—offer excellent opportunity for professional development and advancement.

Immediate openings in our St. Louis general offices and occasionally in our San Francisco branch office. Confidential interviews can also be obtained at Washington, D.C., and Portland, Oregon.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Please write fully, including salary data, to

SVERDRUP & PARCEL, Inc.
ENGINEERS — ARCHITECTS
915 Olive St. Louis 1, Mo.

*We are designers of the technical facilities for the Arnold Engineering Development Center, operated by our subsidiary, ARO, Inc.

The Commonwealth of Pennsylvania Invites

HIGHWAY & BRIDGE DESIGN ENGINEERS

to join our distinguished staff. Many vacancies exist throughout the Commonwealth. Salaries range from $5500 to more than $12,000 based upon education and experience. Security assured through Civil Service. Send complete resume prior to Feb. 13 to:

PERSONNEL, PA. HWYS. DPT., HARRISBURG, PA.

DEPUTY RESIDENT ENGINEER

For a $40 million rockfill and concrete dam in Iraq. Two-year contract; approximately 3-year completion schedule. Family housing at site, but no local educational facilities for children. Fill type dam construction experience required—preferably rockfill. Must be fully capable of assuming duties of Resident Engineer as required. Position is available immediately. Excellent salary. Please send complete personal and experience record to Hugo O. Niemi, Personnel Manager.

HARZA ENGINEERING COMPANY
400 W. Madison St., Chicago 6

STRUCTURAL ENGINEERS

New York State
Department of Public Works
Title: Senior C.E. (Design)

Salary — $7500-9090 in 5 annual increments

Qualifications:
New York P.E. License & 2 years Bridge Design

Location: Albany, N. Y.

For details write

WARREN S. WELCH
Director, Public Works Personnel
State Office Bldg.
Albany, N. Y.

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Designers Detailers Draftsmen

for work on

BRIDGES AND EXPRESSWAYS

PERMANENT POSITION DEPENDING ON EXPERIENCE AND ABILITY

PAID VACATION, SICK LEAVE
HOSPITALIZATION, LIFE INSURANCE

OPENINGS IN:
KANSAS CITY, MO. CLEVELAND, OHIO
MILWAUKEE, WISC. ORLANDO, FLORIDA

INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER TO

Howard, Needles, Tammen & Bergendoff
1805 GRAND AVE. KANSAS CITY 8, MO.

CIVIL ENGINEER

Young civil engineer interested in broad application of civil engineering.

Excellent opportunity with consulting firm. Liberal benefit plans and good working conditions. Location Middle West.

Send resume of education and experience with salary requirements to:

P-3223, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

ASSISTANT CITY ENGINEER

City of Delaware, Ohio
Population 14,500
SALARY: $5,040 to $6,300 per year plus vacation and sick leave benefits.
APPLY: City Manager
City Hall
Delaware, Ohio

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping layout systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to
Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

SALES ENGINEERS

A major steel company has need for sales engineers to promote and sell fabricated products in middle Atlantic states. Excellent opportunities for men 25 to 30 years old with engineering background and a desire for sales work. Attractive starting salary with company car, expenses and bonus plan.

SW-4684, Engineering News-Record,
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

SUPERINTENDENT HEAVY CONSTRUCTION

Experience in foundations, heavy concrete, bridges, treatment plants, industrial construction

ENGINEER-ESTIMATOR

Want experienced heavy construction man with some foundation design experience

DRAFTSMEN EQUIPMENT MAINT. SUPERINTENDENT

to take complete charge of maintenance and repairs on heavy construction equipment.

WANTED BY ACTIVE ENGINEERING—CONSTRUCTION FIRM FOR WORK IN NEW JERSEY

P-7066, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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DIRECTOR of PUBLIC WORKS

Responsible to City Manager for engineering, streets, sewers, public buildings, cemeteries, refuse and, possibly water utility if qualified.

Salary open
Write City Manager, Zanesville, for details and application form.

Applications close March 15, 1958

SALES REPRESENTATIVES OPENINGS

Well known midwest manufacturer of contracting and mining equipment has several attractive openings for sales representatives for established territories in Canada, New York, Pennsylvania, Arizona and midwest. Good starting position, with excellent opportunity for advancement. Should be familiar with selling through dealer organizations.

SW-7093—Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALES ENGINEER

CIVIL ENGINEER with concrete design experience and some sales ability. Prefer man in age limits 24 to 30. Must travel to introduce new products for construction. Salary, commissions, travel expenses and excellent opportunity for advancement with progressive national organization. Write giving resume of training and experience to:

P-7185, Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

BRIDGE MAINTENANCE SUPERINTENDENT

Licensed structural engineer, 35—50, to take complete charge of maintenance operations on major bridge in California. Must have broad background in steel bridge maintenance and repair, and supervising men. Railroad bridge field inspection and supervision helpful. Salary commensurate with education, experience and responsibilities involved. U. S. citizenship required. An outstanding opportunity with permanency, liberal insurance, retirement and other benefits. Interview at mutually convenient location will be determined on basis of personal history furnished. Send complete resume to Box 99, Presidio Station, San Francisco, California.

When Answering

BOX NUMBERS...

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

POSITIONS WANTED
(Continued from page 113)

Soils and materials engineer, 39, single, highly qualified, over eight years office & field experience. M.S. (Soil Mech.) & M.S. (Highwy. Engg.), special experience in soils and foundations. Regd. P.E. Present emoluments about $10,000 annual. Available April, any location. PW-7217, Engineering News-Record.

Expediting Engineer 37 extensive experience as Purchasing Agent and Chief Inspector and Expediter for leading American Construction Engineers on recent well known large Chemical and Industrial projects in U. S. and Europe. John Claridge, 1417 N. Quinn, Arlington, Va.

Construction Supt. General Constr. PW-7186, Engineering News-Record.

Sanitary Engineer, 36, Registered P.E., N.Y.S. Experience in design of sewers, pump station, treatment plant facilities, hydraulics, field engineering on sewers. Seek position with consultant firm. PW-7205, Engineering News-Record.

Civil Engineer; BCE; Reg. PE in Ill.; 29; single; 6 years of diversified experience in water and sewer systems, streets, highways, water treatment, topo mapping, line and property surveys. Available March. PW-7206, Engineering News-Record.

Mechanical Engineer, 38 years old, 17 years experience, to act as Resident for Canada with H.W. in Montreal. Maintenance, Construction, Heavy Machinery, Power House, Industrial and Airport Equipment. Presently employed as Chief Mechanical Engineer and well connected throughout the country. Fluently bilingual. Minimum salary $12,000. PW-7208, Engineering News-Record.

Consulting Mechanical Engr., practicing in Florida, seeks connection as Florida representative of engineering organization. PW-7210, Engineering News-Record.

Construction Engineer twenty-five years U.S. and foreign. Technical, highways, plants, sanitary, surveys. Fluent Spanish. Anywhere. Available. PW-7216, Engineering News-Record.

Engr. Geologist, P. Eng., 31, family, employed. 7 years experience engineering-mining geology, 4 of these years geologist-soils engineer in highway construction and reconnaissance. Desire to locate in western US. PW-7214, Engineering News-Record.

Graduate engineer, age in thirties, available as estimator-engineer or project manager. Experienced in commercial and light industrial construction. Salary expected $8,000 to $10,000. Location east or southeast U.S. PW-7202, Engineering News-Record.

Wanted by Construction Supt. work. All types of work, roads, bridges etc. In Southern New England. Available now. PW-7165, Engineering News-Record.

Contractor's assistant, competent estimator-job manager, graduate engineer, 32, seeks position of responsibility with medium size building contractor. Prefer Southeast or Middle Atlantic states. PW-7201, Engineering News-Record.

Eng./Supt.—37—general & heavy construction. Sewer & waterline projects, siteworks, estimates, take-offs. Resume on request. PW-7191, Engineering News-Record.

Civil Engineer, B.S. Cal. Reg. 9 yrs. exp. struct. design & some const. ind. bldgs., oil refineries etc. Desire position in Europe. PW-7192, Engineering News-Record.

WORK WANTED

Surveying field parties experienced, fully equipped. Contract or per diem, licensed. WW-7196, Engineering News-Record.

PART-TIME WORK WANTED

Part Time Work—Retired licensed structural engineer available for structural design, shop drawings, reinforced concrete. PTWW-7193, Engineering News-Record.

DON'T FORGET

the box number when answering advertisements. It is the only way we can identify the advertiser to whom you are writing.

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CONSTRUCTION CONSULTANTS
P.O. Box 921 — Lake Worth, Florida

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400 KW, 3 phase, 60 cycle, 4160 volts—37 ft. head, vertical. State age, condition, location and price.

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Bendix G-15 computer available on service bureau basis for engineering computations.

- Earth work, traverses, highway geometrics
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Programming available for other applications. For full information write to:

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Air conditioned, exceedingly light office available, Radio City va., reception rm., drafting facilities if necessary. BO-7215, Engineering News-Record, P.O. Box 12, New York 36, N. Y.

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One-Ton ASPHALT PLANT,
complete with tanks
$25,000.00
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SEARCHLIGHT Equipment Spotting Service

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment *not currently advertised.* (This service is for USER-BUYERS only). No charge or obligation.

How to use: Check the dealer ads to see if what you want is not *currently* advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Spotting Service
c/o ENGINEERING NEWS-RECORD
330 W. 42nd St., N. Y. 36, N. Y.

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Spotting Service
c/o ENGINEERING NEWS-RECORD
330 W. 42nd St., N. Y. 36, N. Y.

Please help us locate the following equipment components.

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TITLE .....
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STREET
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Manitowoc Cranes

Models 2000-B, 3500 or 3900. 25 to 70 Ton Capacity—50' to 125' booms — 20' or 30' jibs — manual controls — independent booms — torque converters.

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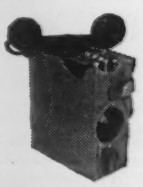

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1½ to 10 Ton — 18" to 56" Track Gauge
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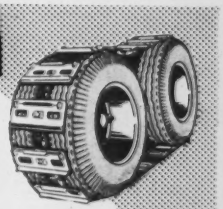

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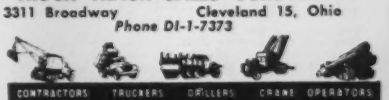

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Partnership Opportunity

DENIAL OF A LICENSE by the Federal Power Commission for dams at Mountain Sheep and Pleasant Valley sites has plunged the middle Snake River into a public vs private power, high vs low dam controversy all too reminiscent of the Hells Canyon imbroglio several years ago. This time, however, a prolonged controversy such as occurred over the upstream site can have much more serious effect on the growth of the Pacific Northwest.

The Hells Canyon battle was fought at a time when there were a goodly number of attractive and non-controversial power sites available for development in the region. Now, though, the picture has changed to the point where a lengthy fight over the Mountain Sheep-Pleasant Valley and FPC-recommended Nez Perce sites can force an uneconomically early turn to thermal power.

Clearly then, the middle Snake question should be settled quickly—and the often abused "partnership" concept appears to offer the best hope for solution. If a high dam is to be built, offering the advantage of hold-over storage and flood control as well as power, it will be too expensive for private interests alone. But it is the private interests who are most attuned to the need for fast power. Isn't this an ideal setting for a real partnership project—part public and part private?

So far, in the West, partnership has meant either one or the other, which isn't partnership at all. Under a joint scheme, too, it would be possible to place a high dam (most probably a 700 ft arch) at the Pleasant Valley site which would avoid the salmon problem at Nez Perce.

Fewer Work Stoppages

A NATIONAL LABOR RELATIONS BOARD RULING that closes the door to one of the construction industry's biggest plagues—the jurisdictional work stoppage—is a long overdue and refreshing decision.

For years, contractors and the international building trades unions have tried to settle work assignment disputes voluntarily. But they have failed in many instances to get local unions, even though under a no-strike pledge, to comply with the voluntary settlement procedure the industry has established.

All this time, the NLRB has had the power to stop such strikes, but has thought it was under a Congressional mandate not to enter disputes which the industry itself attempted, however unsuccessfully, to settle.

As a consequence it's now welcome news that the NLRB—going far beyond what was necessary to the decision—has reversed its stand and, in future strikes, will supplement the industry's own machinery with the teeth of our labor law.

Incredible as it seems, the old approach remained unchallenged for 10 years. And perhaps it would still remain so if the National Joint Board and two local employer associations—the Building Trades Employers Association of Long Island and the Acoustical Contractors Association of New York—had not had the strength of their own convictions to wade voluntarily through long and costly litigation for the good of all.

And in going out of its way to dispel years of chaos and confusion, the NLRB has fortuitously strengthened the National Joint Board, which is the industry's voluntary machinery for settling disputes. Not only does the board still remain the only forum for settling disputes on their merits, but it now has some collateral enforcement machinery that's long been sorely needed.

The fact that it took so long to establish a point self evident to many—that Congress intended to encourage voluntary settlement of jurisdictional disputes, but not to render the NLRB powerless to prevent resulting strikes—is, moreover, a timely and eloquent plea for clarity and simplicity in the drafting of future labor legislation.

Back to Low-Price Housing

SEVERAL SPEAKERS at the annual convention of the National Association of Home Builders warned homebuilders they were in danger of pricing themselves out of the market. Builders appear to be aware of this danger, but not many seem to be doing anything about it.

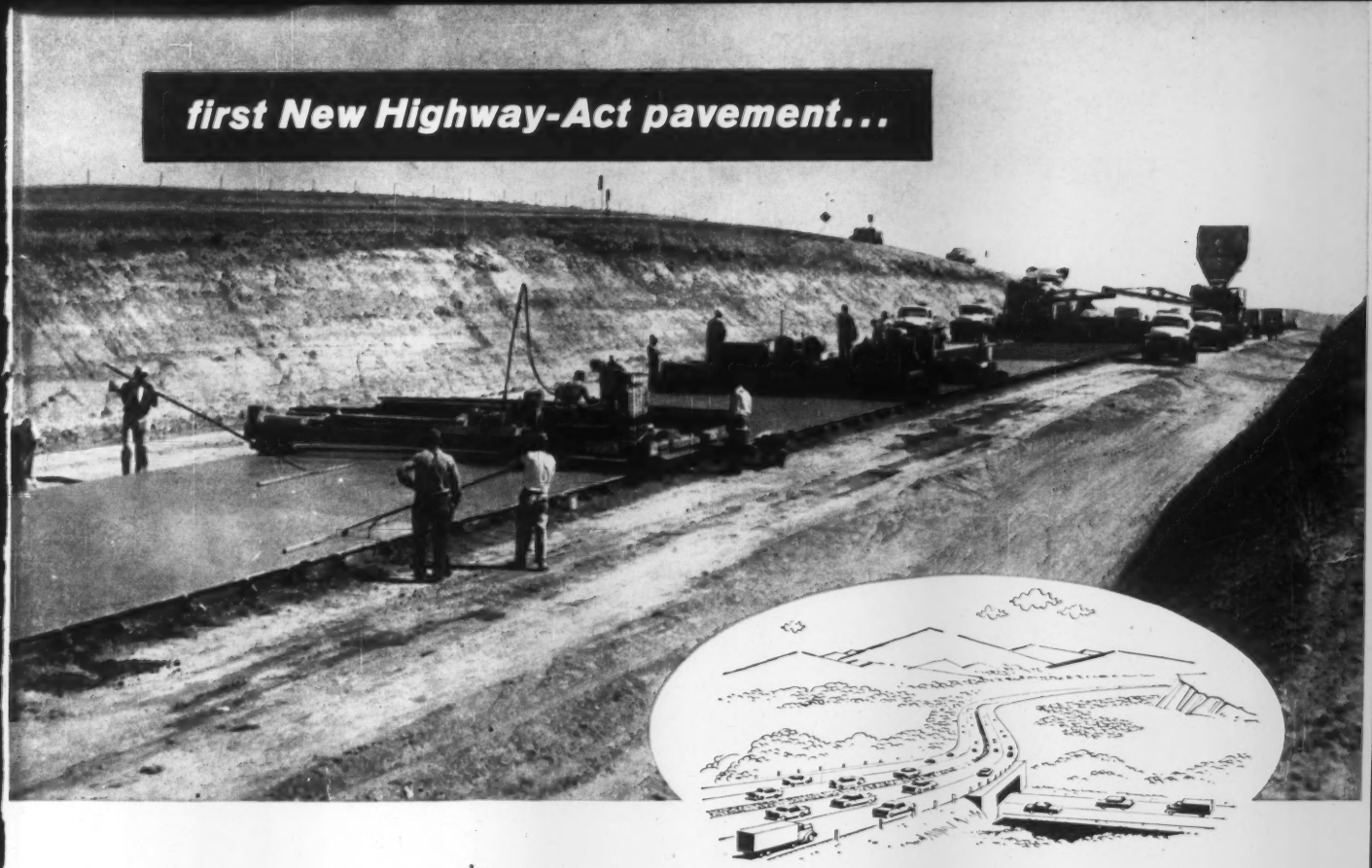
For several years, homebuilders have been constructing fewer and fewer houses in the low-price range ($15,000 and under). During this period, housing sales reached a peak and started to fall off rapidly. While many factors contributed to the recession, the trend away from low-price housing probably is one of the most influential. For in shifting to higher-price housing, builders have been moving out of the mass market.

Reversing the price trend will not be easy. It can't be done merely by making houses smaller and using cheaper materials, since competition is keener today than it was before the sales peak was reached. (See, for example, ENR Jan. 16, p. 40). Costs must be sliced without sacrificing quality, and that calls for ingenuity on the part of construction management in all phases of homebuilding from design through financing, land purchase, erection and sales.

The NAHB did an excellent job at its convention last month in providing a forum for builders to air their opinions on how to cut costs. These idea-swapping sessions, the proceedings of which will be published by NAHB, made it clear that opportunities to slash costs are legion in all phases of homebuilding.

Thus, the return to the mass market depends on the decision of the homebuilders, since the means to lower costs are available.

first New Highway-Act pavement...



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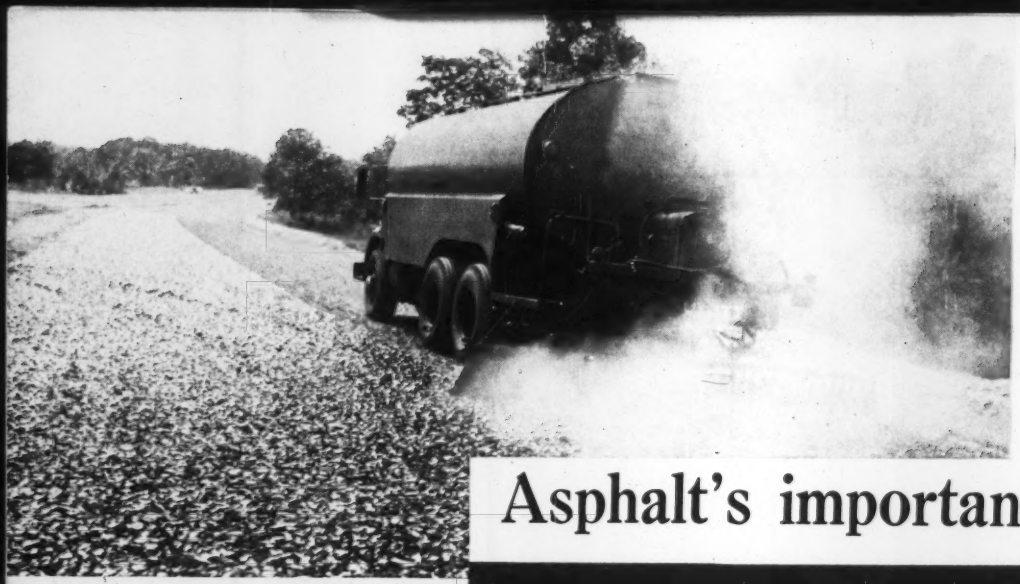

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